Clinical Lecture
ON
EXTRA-UTERINE GESTATION.

Delivered at the Middlesex Hospital,

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GENTLEMEN,—As we have had in Prudhoe ward, within a comparatively short period of one another, three cases of extra-uterine gestation, each presenting some most interesting features, I propose in this lecture to first give you their history (somewhat briefly), and then afterwards to make a few remarks on this very important subject.

CASE 1. *Tubal gestation on the left side; rupture between the layers of the broad ligament; abdominal section; death.*—Mrs. C——, aged thirty, was sent from Essex as a case of irreducible retroverted gravid uterus. The catamenia began when she was eleven years of age, and had always been regular and natural. She was married eight years ago, and had three children; no miscarriages. The first child was born fourteen months after marriage, and the last two years ago. Since the birth of the last child the periods had been perfectly natural and regular until four months before admission, on Aug. 22nd, 1888. The last period was in April. Since then there had been two floodings, one in June, and another more severe on July 16th, both accompanied by pain; there was also a slight loss a few days before coming to London. For the last three months there had been great difficulty in micturition, accompanied by constipation and severe intermittent pain in the back. The patient, a thin, pale-looking woman, with a temperature of 101·8°, was too ill to give a good account of her illness when admitted to hospital. On examining the abdomen, a firm pyriform swelling was found to the right of the linea alba and reaching to within a finger's breadth of the umbilicus; its lower and smaller end dipped into the pelvis, and the whole tumour felt like an enlarged uterus. To the left of the linea alba was a smooth fluctuating cyst (the bladder), and on deep palpation over it there could be felt a firm, resisting mass in the left half of the pelvic cavity. Auscultation revealed nothing. Per vaginam, the os uteri could just be reached high up in front, above the symphysis pubis. Filling up the pouch of Douglas was a large elastic swelling, which was apparently fixed in the pelvis, and the manipulation of which caused considerable pain. There were no mammary changes. Urine acid, sp. gr. 1010, with albumen, mucus, and lithates. The diagnosis was a rapidly growing tumour (probably extra-uterine), pushing up the uterus and bladder out of the pelvic cavity. On Aug. 23rd the patient was extremely ill, had several rigors during the night, lasting from five to thirty minutes, and the temperature going up to 103°. Although the condition seemed hopeless, I decided to at once open the abdomen and explore. Ether was given, and an incision made from above the symphysis pubis to near the umbilicus, and the abdominal cavity rapidly opened. The bladder was found to be adherent to the wall of the abdomen and to the uterus, which was to the right. The adhesions were separated and the bladder pushed back into the pelvic cavity. The uterus was now found to have a large blood tumour intimately connected with its left side and passing out in the direction of the broad ligament, and backwards into the pelvis; the tumour was separated from numerous adhesions to the omentum, intestines, and pelvic wall as quickly as possible, and then the uterus and tumour were together lifted out of the abdominal cavity. By this time the patient's condition was alarming. She was collapsed, breathing laboured, and pulse scarcely perceptible at the wrist; so I decided to put a serre-nœud round the cervix uteri and below the tumour and ovaries, cut off the mass, and rapidly complete the operation. The few clots remaining were removed by flushing the pelvic cavity with warm water, and then the wound closed, a drainage-tube being inserted into the lower angle. Notwithstanding the use of brandy and ether injections, artificial respiration, hot applications to the cardiac area, and bandages to the limbs, the patient never rallied, and died soon after the operation was finished. There was very little blood lost, not more

FIG. 1.

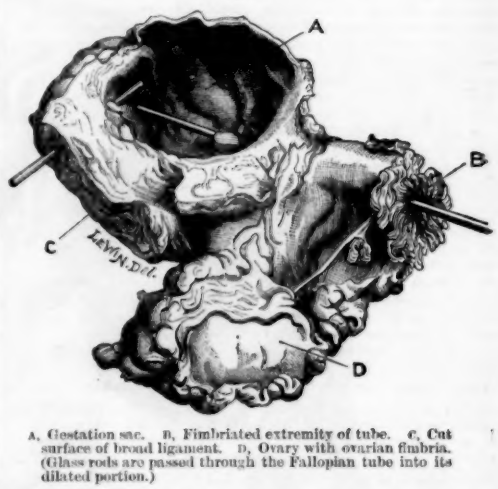
A, Uterus laid open from behind. B B B B, Broad ligament. C C C, Blood-clot. D, Placenta and membranes. E, Right ovary and tube.

than a couple of ounces. On examining the parts removed, the left Fallopian tube was found (as seen in Fig. 1) to be the seat of a gestation sac which had ruptured between the layers of the broad ligament, in which situation there was a large amount of blood-clot.

CASE 2. *Right tubal gestation; rupture into the peritoneal cavity; abdominal section; recovery.* — Mrs. P——, aged twenty-nine, a chemist's wife, was admitted into Prudhoe ward on April 6th, 1889. The catamenia first appeared at eleven years of age, and recurred regularly every month, and lasted a day or a day and a half. She has been married four years and nine months, and has one child born four years ago. Forceps delivery followed by post-partum haemorrhage. Four days afterwards pelvic inflammation set in, accompanied with great pain in the right side of the lower abdomen. She was treated with poultices and fomentations. On Feb. 1st, 1889, the patient had a natural period, lasting one day. In the last week of the same month she had a few attacks of pain in the right ovarian region, during which she had to lie down. The March period did not appear, but about the 7th the pains began to be more frequent and prolonged. On the 20th she began to lose blood, and continued to do so for a week. On the 29th she took a long walk, and on her return found she was losing blood. On the 30th, at 10.30 A.M., whilst in bed, she had a severe attack of pain in the right ovarian region; this lasted an hour and a half. At 9 P.M. she had an extremely severe attack of pain in the same place, which lasted for six hours and a half. My colleague, Mr. Andrew Clark, was called in to see her, and gave a sedative. She is said to have fainted during this attack. On April 1st I saw her in consultation with Mr. Clark, and found in the region of the right Fallopian tube a tense elastic swelling, about the size of a billiard ball, which pushed the somewhat enlarged uterus towards the left. I expressed the opinion that it was in all probability a tubal gestation. It was decided to keep the patient absolutely at rest for a few days and to watch her. On the 4th she was said to be in great agony from 10.30 A.M. to 9 P.M., during which attack she again fainted. I saw her again, found the physical signs pretty much the same, but recommended that she should come into the hospital for abdominal section. Since April 1st she has continued to lose a little blood at intervals. When admitted to hospital on April 6th, the patient was a delicate-looking, well-nourished young woman, rather anæmic in appearance, with dark areolæ round the eyes. She lay in bed with her knees drawn up. The tongue was moist, slightly coated with white fur; temperature 99°; the pulse 100. The heart was normal. No swelling in the abdomen was seen, and nothing detected on palpation except some deep-seated tenderness in the hypogastric and right iliac regions. Per vaginam the uterus lay low in the pelvis, enlarged, and its mobility was impaired; the cervix was enlarged and soft; the os uteri admitted the tip of the index finger; the uterus was pushed over to the left, and its mobility impaired by a firm, tender mass the size of an orange in the region of the right broad ligament. The breasts were not enlarged, a few dilated veins were seen coursing over them; the areolæ were well marked, the nipples prominent and moist; the follicles were enlarged; no milk could be pressed out. Since admission the patient has been fairly comfortable, and has had no further attack of pain. On examination under an anæsthetic the tumour was found to be more diffuse and about the size of a cocoanut. So I decided to open the abdomen. On April 11th at 9 A.M. the following operation was performed, the patient being under the influence of ether:—On opening the abdomen dark blood-clots were at once seen between the coils of intestine in the hypogastric region. The pelvis was filled with blood, which was rapidly removed with the hand; then the right ovary and tube were separated from numerous recent adhesions and brought into view, when the tube was seen to be dilated and ruptured. The broad ligament was transfixed and the ovary and tube removed in the usual way. The left ovary and tube were not interfered with. The pelvic cavity was cleared of small clots by means of sponges on sticks. The abdominal incision was united by means of eight deep silk sutures, the wound dressed with powdered iodoform and sal alembroth wool, and retained *in situ* by a flannel roller. The operation occupied thirty minutes. Examination of the parts removed showed (see Fig. 2) that the right broad ligament had been divided near the proximal end of the Fallopian tube. The fimbriated extremity of the tube was found free but coated with clot; about an inch of the tube at its free end was enlarged somewhat; the remainder of the tube was dilated into a sac about the size of a hen's egg. In the posterior surface of this was a large rent, through which the contents had escaped. A rounded, fibrinous-looking mass was found, which partly filled the cavity; it consisted of clot and membranes, but no embryo was found. The ovary was enlarged and contained several small cysts (probably dilated Graafian follicles), it was connected to the morsus diaboli by the ovarian fimbria. A large quantity of blood was also removed, which would have measured from one to two pints. The patient progressed uninterruptedly well after the operation until April 26th, when she was allowed to sit up on a couch. On the night of the 27th the temperature went up to 100°; there were sickness and pain over the right iliac region. These symptoms continued until the 30th, when a distinct mass could be felt per vaginam to the right of the uterus and reaching up above the pelvic brim. This gradually became less, and finally disappeared by May 19th. The patient left the hospital cured on May 23rd. In January, 1890, she was perfectly well and had put on flesh. The periods were quite regular.

CASE 3. *Extra uterine gestation; laparotomy; fæcal fistula; recovery.*—Mrs. H——, aged fifty-eight, was admitted into Prudhoe ward on Feb. 4th, 1889, under the care of my then colleague, Dr. Edis, to whose courtesy I am indebted for permission to use these notes. The catamenia

FIG. 2.



A, Gestation sac. B, Fimbriated extremity of tube. C, Cut surface of broad ligament. D, Ovary with ovarian fimbria. (Glass rods are passed through the Fallopian tube into its dilated portion.)

appeared first at eighteen, and recurred regularly every month (lasting four days). Patient was married on Dec. 22nd, 1888, but said she ran the risk of becoming pregnant for the first time in the September previous. The last catamenia occurred on Sept. 15th and was perfectly natural. Her present illness began at 3 A.M. on Oct. 1st, when, whilst in bed, she felt a sudden violent pain in the abdomen; became very weak and giddy and fell back on the bed; she was able, however, to get up at 7 A.M. and do her work as cook. Next day she again had severe pain in the abdomen on the left side. Hot flannels were applied and the feet put in mustard-and-water. On Thursday, Oct. 4th, at 6 P.M., patient had a severe attack of pain in the same position which caused her to fall down. She stayed in bed on the 5th, and resumed her work next day. On the following two days she had some pain, and on the 12th she had severe pain and took a hot bath for it. On the 13th she had loss of blood per vaginam, which she took to be her period; it lasted four days, and was greater than usual. From Oct. 18th onward through November she had no discharge and very little pain. On Dec. 12th she again had severe pain in the same position. On the 19th she had violent pain, and a constant desire to defecate. On the 22nd she was married, and the same night she had a bad attack of retching. On the 24th she called in a medical man, who treated her (without making an examination) until Jan. 10th, 1889; during this time she passed per vaginam "two pieces of

pink-coloured flesh of the consistence of liver." On Jan. 10th she had a bad attack of pain. On the 27th she was examined under chloroform by two doctors, who diagnosed a fibroid tumour in the posterior wall of the uterus. For about a month micturition occurred every hour, and urine has continued to dribble after she thought she had emptied her bladder. There have been weakness and swelling of the left leg and ankle for several weeks. She has had no morning sickness, but the appetite for breakfast has been bad for six weeks. She noticed that the breasts swelled in October. When admitted the patient was a thin, sallow-complexioned woman, complaining of pain and swelling of the abdomen. The mammæ were full, with dilated superficial veins; the nipples were rather prominent; no dark areolæ; the follicles enlarged. A little milk could be expressed. The lungs were normal; the heart's apex beat was in the fifth space; there was a distinct systolic bruit there. The lower half of the abdomen was generally distended. On palpation a firm resisting smooth tumour was felt coming up out of the pelvis and reaching as far as the umbilicus, and laterally into the iliac regions, so that the long axis of the swelling appeared to be transverse; a slight depression or sulcus could be felt at the umbilicus. There was a distinct thrill over the left half of the swelling; most marked about two inches and a half below and external to the umbilicus. There was great tenderness all over the swelling, but especially over the left half. No intermittent contractions were detected. On auscultation a distinct whizzing bruit could be heard over the left half radiating and gradually decreasing from a point half way between the umbilicus and the middle of Poupart's ligament. Fœtal heart-sounds not heard. Immediately after the patient had voided urine a catheter was introduced and six ounces more were drawn off. Per vaginam the cervix pressed high up behind the pubes; it was soft and somewhat enlarged; os uteri patulous. No fundus uteri could be detected above the pubes on bimanual examination. The pelvis was occupied by a tense circumscribed mass, tender upon pressure, in the left iliac fossa. The surface was irregular in outline. On conjoint manipulation the mass could be felt extending from just within the left anterior superior spine to the umbilicus. On Feb. 5th there was œdema of the left leg and foot. The pulse in the left tibials was not so strong or distinct as on the right side. On the 10th the tumour was larger than on admission; that portion to the right of the middle line (? uterus) was much harder than the rest of the tumour, which felt cystic. There was some tenderness over this hard portion, but most low down on the left side just above the middle of Poupart's ligament. Patient had not felt any movements in the swelling, but whilst examining it one or two slight movements were detected. Repeated auscultations have failed in finding the fœtal heart. The patient's general condition had distinctly improved since her admission. Chloroform having been administered on Feb. 12th at 10 A.M., Dr. Edis made an incision in the median line of the abdomen to the extent of five inches. The peritoneal cavity having been opened, the smooth round anterior surface of the uterus was exposed, reaching upwards as high as the umbilicus. Continuous with it on the left side was a smooth tense cyst between the layers of the left broad ligament. This cyst extended to the pelvic brim, to which it was firmly adherent, so that the hand could not be passed round it. Its upper margin was sharply defined, and extended as high as the umbilicus. Over its anterior surface passed the left Fallopian tube. The ovary was not seen. To the back of the uterus and cyst the intestines were firmly adherent and could not be separated. A vertical incision was then made into the anterior wall of the cyst, when the liquor amnii gushed out. The fœtus, a stillborn male, 10½ in. long, was delivered by the legs. The umbilical cord was divided and the placental end ligatured. Rather profuse hæmorrhage occurred from the incision in the cyst wall, but it was soon stopped by pressure forceps. The edges of the opening in the cyst were then sutured to the lower end of the abdominal incision by eight or ten silk sutures. A glass drainage-tube, 4 in. long, was inserted into the abdominal cavity just above this, and the upper part of the abdominal incision sewn up. Two sponges wrung out of vinegar-and-water (1 in 4) were passed into the cyst to stop hæmorrhage. The wound was dressed with sal alembroth wool and carbolic gauze, and fixed by a many-tailed flannel bandage. The operation lasted an hour and a quarter. 2 P.M.: Sponges removed; no hæmorrhage. Patient complaining of sharp pain, so ¼ gr. morphia suppository was given. Pulse 104, of fair volume. 10 P.M.: Another suppository was given at 8 P.M., as there were several sharp pains. Wound dressed. About two drachms of blood-stained serum removed through glass tube.—Feb. 13th: Patient had a good night and feels comfortable. No abdominal distension. Drainage-tube removed. Cyst irrigated with a solution of iodine and water. Urine cloudy, acid, sp. gr. 1025, one-tenth albumen. 3 P.M.: Dressings soaked with blood-stained discharge. Dr. Edis removed dressings, and irrigated cyst with hot iodine-and-water. Whilst doing so blood began to well up profusely; hot vinegar-and-water failed to check it. The patient became collapsed and fainted, so an injection of liquor ferri perchlor. fort. and water (1 in 4) was used. This at once stopped the loss. Pulse 132. Brandy given by the mouth. The head was lowered, the foot of the bed raised, and hot bottles applied to the patient. A quarter of a grain of morphia given hypodermically. 5 P.M.: Dressings again saturated, so persulphate of iron was applied to the edge of the cyst, and a plug of cotton-wool soaked in liquor ferri perchlor. fort. was passed into the cyst cavity. A teaspoonful of brandy was ordered to be given every half hour, and nutrient enemata every three hours. 10 P.M.: Patient just seized with a violent convulsive attack, becoming unconscious and almost pulseless. No hæmorrhage. Half an ounce of brandy by the mouth and half a drachm of ether hypodermically were at once given, when she finally revived and regained consciousness. Morning temperature 98·4°; evening 99·2°; pulse 126.—14th (third day): Has had a good night; slept four hours and a half. Pulse 136, regular; tongue clean and moist. Cyst irrigated with iodine-and-water. Abdomen rather distended with flatus. Morning temperature 99·2°; evening 100·4°; pulse 136.—15th: Cyst foul-smelling; again irrigated. The umbilical cord, with some sloughing pieces of the placenta and blood-clot, were removed. Has passed a good deal of flatus, so the abdomen is less distended. An enema consisting of one drachm of spirit of turpentine, one ounce of castor oil, two ounces of olive oil, and twenty ounces of hot water was given. Patient does not look so well; her features are pinched and eyes sunken. Temperature 100°; pulse 132. Evening: Cyst irrigated with sulphurous acid and water (1 in 10). Abdomen much distended. A quarter of a grain morphia suppository given and half an ounce of brandy every hour. Temperature 100·2°; pulse 140.—16th: Discharge from cyst very offensive; the irrigation repeated. Five stitches removed from the abdominal incision. On removing them about an ounce of pus escaped from the spot where the drainage-tube was inserted. During the night a large quantity of flatus passed per anum, with much relief. Tongue dry, brown, and coated. Breath sweet-smelling. Ordered five grains of quinine every four hours. Temperature 100°; pulse 144. Evening: Cyst cavity irrigated. Patient takes nourishment (milk, jelly, beef-tea, chicken broth, and brandy) well. Temperature 100·8°; pulse 140.—17th: Had a restless night; there is some suppuration about the stitch holes, so a hot lead fomentation was ordered. Two stitches removed from the margin of the cyst, which was again irrigated, during which some pieces of placenta came away. Urine very acid, sp. gr. 1018, contains albumen and a lot of large uric-acid crystals. Temperature 100·2°; pulse 132. Evening: All the remaining stitches removed, giving great relief, and followed by the escape of some beads of pus; hot fomentations continued. Temperature 101·2°; pulse 132.—18th: Patient has been delirious during the night, and at times very restless. This morning she is better; there is a herpetic eruption on both lips; several more pieces of placenta came away on irrigating the cyst, the discharge from which is very foul; tongue dry; there is no pain, and there has been no sickness since the operation. Temperature 98·6°; pulse 120. Evening: A large amount of decomposing blood-clot and placenta removed by forceps, so that nearly the whole of the cyst was emptied; the pieces removed emitted a most offensive odour. Cyst irrigated with a large quantity of sulphurous acid solution. No pain or hæmorrhage followed. Bowels well opened, the motion being formed and light-coloured. Temperature 101·2°; pulse 132.—19th: Passed a better night. Cyst irrigated three times daily. Ordered a draught every six hours containing eight minims of tincture of digitalis, three grains of sulphate of quinine, ten minims of spirit of chloroform, and fifteen minims of spirit of aromatic ammonia to one ounce of water. Temperature 101°; pulse 132. Evening: More fragments of placenta removed, and the cyst is contract-

ing. More pus escaped from the abdominal wound where drainage-tube was inserted. Temperature 101·8°; pulse, 126.—20th: A large drainage-tube inserted into the cyst in order to keep the opening into it patent. As the bowels have not acted since the 18th, and the patient is continually straining owing to a feeling of irritability in the rectum, she was given a one-ounce compound senna draught. Temperature 101·6°; pulse 126.—21st: Patient has had a better night; no pain; bowels open slightly. On removing the fomentation it was found to be stained with about two drachms of fæces, but no opening could be detected. The rectum was found to be full of fæces, so a simple enema was given and the bowels were well opened. Morning temperature 101·2°; evening 100°; pulse 120.—22nd: Bowels acted five times yesterday. Fæces still escaping from the cyst. Condy's fluid substituted for the sulphurous acid irrigation. Temperature 100·6°; pulse, 112.—23rd: Patient restless. Much fæcal discharge through the cyst opening. Temperature 99°; pulse 88.—24th: On irrigating the cyst the fistula is plainly seen at the upper part of the opening into the cyst. The skin around the wound is becoming irritated by the fæcal discharge, so zinc ointment was applied. The edges of the abdominal incision above the cyst opening are separated about half an inch, and the intervening surface is covered with weak granulations, so sulphate of zinc lotion applied. Temperature 99°; pulse 96.—25th: Patient has slept well. Tongue coated with white fur. Temperature 99°; pulse 96.—March 4th: Since the 25th the patient has been slowly improving. Cyst irrigated with Condy's fluid, and a little sulphate of zinc to stimulate the granulations. There is a distinct spur-like projection at the fistulous opening, and the bowel appears to be a good deal narrowed at this spot. The depth of the cyst is four inches and a half. Temperature normal; pulse 100.—11th: Yesterday the patient vomited three or four times a greenish-brown fluid. There was profuse liquid fæcal discharge from the fistula this morning. Ordered one drachm of confection of senna.—12th: Some abdominal pain after the confection. This morning several hard scybala escaped. Sinus now measures three inches and three-quarters deep, and is much narrower. Per vaginam the cervix uteri smaller and harder. Uterus less bulky than before operation; it is fixed and displaced to the left.—16th: Bowels blocked by hard fæces above and apparently below fistula, so an oil enema ordered.—17th: Enema repeated, as that yesterday had no effect, some of it escaping through the fistula. Bowels acted once later in the day.—21st: Yesterday the rectum was found to be crammed with very hard fæces, which could scarcely be broken down with the finger. An oil enema was given, and this brought away a large hard mass. During the night the bowels acted through the fistula six times. The sinus is rapidly contracting and the fistula is granulating up.—28th: Patient began to get up three days ago. There is scarcely any discharge through the fistula.—April 5th: Vaginal examination made. Cervix uteri points downwards and to the left. Bimanually the fundus uteri felt reaching half-way up to the umbilicus; more mobile and smaller than when last examined. Scarcely any discharge through fistula.—17th: Three days ago the patient noticed a small painful lump just above the centre of the left clavicle. There is an enlarged gland here about the size of a Brazil nut, also another just below the bone, and several in the axilla. The glands are somewhat reddened and very tender. No sore or swelling of any kind on the left upper extremity, nor can any enlarged glands be felt elsewhere. The third, fourth, and fifth fingers of the left hand feel cold and numb. For the last three days the temperature has gone up in the evening to nearly 101°. Nothing abnormal to be detected in the lungs or heart. Iodide of potassium ointment to be applied night and morning and arsenic given internally.—25th: Does not feel so well, and is very anæmic. The enlarged glands have not altered for some days. Temperature last night was 101·4°.—28th: Patient is under the influence of arsenic, so the drug was ordered to be taken only twice daily. The metacarpo-phalangeal joint of the left hand is swollen, reddened, and very tender. There has been for the last four days much night-sweating, with cough and nasal catarrh. There is expectoration of a muco-purulent, frothy sputum. A fresh enlarged gland felt along the posterior border of the left sterno-mastoid muscle. The spleen is not enlarged. Temperature last night 101·4°. Ordered five grains of sulphate of quinine three times a day.—May 2nd: Swelling of joint subsided. Glands remain the same.—6th: Glands smaller; still night sweats. Temperature again normal.—10th: Patient was in the garden for a couple of hours yesterday. Fæcal fistula nearly closed.—15th: Much better; glands much smaller; sweating at night has almost disappeared. Bowels act naturally daily.—25th: Left hospital cured.

You are doubtless well aware that extra-uterine gestation is described under the three heads of—(*a*) tubal, (*b*) abdominal, and (*c*) ovarian; and that of each of these several varieties are mentioned. Now, the great majority of the cases are unquestionably tubal; they are likewise the most important. A true ovarian pregnancy, if it occurs at all, which is doubted by some, does so with such exceeding rarity that we need not further consider it. When gestation takes place, as is most often the case, in the free portion of the Fallopian tube, the usual course pursued is that the tube goes on dilating until between the sixth and twelfth weeks, when it suddenly ruptures from contraction and over-distension. This rupture may either occur in that part of the tube covered only by peritoneum, and then we get those cases of profound collapse followed by rapid death; not invariably, however, nor need there be a profuse outpouring of blood, for the opening may be temporarily blocked by the contents of the tube (as occurred, I imagine, in my second case). In other instances the rupture occurs so that the blood is effused between the layers of the broad ligament, giving rise to a hæmatoma of that structure. (A typical specimen of this, which I removed from the first case described, is now before you.) When the rupture takes place between the layers of the broad ligament, the following may be the results: First, the fœtus dies, and the extravasated blood becomes absorbed more or less completely. Secondly, inflammatory changes may set in, followed by the formation of a pelvic abscess and its consequences. Thirdly, instead of dying, the fœtus may go on developing to, or even beyond, the natural term; this development, secondary to rupture of a tubal gestation, is well illustrated by the third case recorded. Lastly, the broad ligament may give way some time after the tube has ruptured into it, and then either an abdominal gestation may result or the woman may die from the secondary hæmorrhage into the peritoneal cavity.

It has recently been asserted that "in the great majority of tubal gestations the fœtus dies early, the progress of the pregnancy is arrested, and the symptoms disappear." But on what grounds this statement is made we are not informed; and I am sorry to be unable to commend it to your belief, as I fear the opinion held by almost all authorities, that tubal gestations pretty invariably rupture before the twelfth week, is only too true. Were the other correct, surely out of the many laparotomies that have been performed for diseased uterine appendages some specimens of these quiescent tubal pregnancies should have been met with; but, so far as I am aware, there are none reported.

With regard to abdominal gestations, great diversity of opinion exists, some eminent authorities regarding them as resulting from secondary rupture of a broad ligament in the manner just mentioned; and they maintain that the placenta, becoming completely detached from its primary seat, can form fresh connexions in the abdominal cavity without the death of the fœtus ensuing. Before we can dogmatise on this point, accurately performed and carefully recorded post-mortem examinations are needed; for my part, however, I cannot conceive such an occurrence as the transmigration and replantation of the placenta to be possible. In all probability many of the recorded cases of so-called abdominal pregnancy were in reality either those in which the fœtus continued to grow between the layers of the broad ligament, or in which this ligament had ruptured and, whilst the placenta remained attached to its original site, the fœtus escaped into the peritoneal cavity and there went on developing. That "primary" abdominal gestation does some times occur is proved by the undeniable fact that the placenta has been found growing to the intestines.

The diagnosis of extra-uterine pregnancy is often replete with difficulty, as the symptoms may either be indefinite or even altogether absent. Most often you will get a history of a previous pelvic inflammation, perhaps dating from the last confinement; then the woman will tell you that she missed one, or even two periods, and that this was followed soon after by pelvic pains and an irregular discharge of blood. The pelvic pains are due to the contractions of the uterus and the affected tube; they may be so severe as to cause actual collapse, without being necessarily accompanied by rupture. The uterine contractions tend to

partially or completely detach the decidua, which, as you know, lines the uterine cavity in these cases. As a result, there is usually an irregular hæmorrhagic discharge, containing sometimes pieces of the decidua; these pieces must, by their much greater thickness, be differentiated from shreds of the normal mucous membrane and from the casts met with in cases of membranous dysmenorrhœa. Both the uterine contractions and the loss of blood may, however, be entirely absent. Whenever you get a history such as the above, accompanied perhaps by morning sickness and pains in the breasts, you should at once insist on the necessity for making a thorough examination of the pelvic organs; for, after all, it is only by the physical signs that a positive diagnosis can be made.

Let me here urge upon you the absolute importance, in order to avoid serious mistakes, of following the method of examination which you see me invariably adopt both in the ward and the out-patient room—namely, to investigate the condition of the abdomen before proceeding to make a vaginal examination. I could relate many instances where the neglect of this precaution led to a failure of diagnosis on the medical man's part and to a grave result for the patient. In the first case I have described, had the abdomen been examined, a diagnosis of retroverted gravid uterus, with the repeated and vigorous attempts at reduction which followed the diagnosis, would not have been made, and in all probability the patient would now be living.

In cases of tubal pregnancy—if you are fortunate enough to be consulted prior to rupture—you will detect, by the conjoined manipulation, a rounded, somewhat elastic and tender, mobile swelling, varying in size from a hen's egg to a billiard ball, and situated to one or other side of, or perhaps rather posterior to, an enlarged uterus, the cervix of which is probably swollen and softened and the os uteri patulous. Where rupture has recently taken place and blood been effused into the pelvic cavity, you will most likely detect nothing, as blood thrown out there is usually unrecognisable until after coagulation has set in one or two days later. When the rupture occurs between the layers of the broad ligament you will find a tumour of varying size occupying one side of the pelvis, or perhaps filling up, likewise, the pouch of Douglas, pushing the uterus forwards and upwards, so that the os uteri may be only just within reach, and the vaginal signs may closely simulate those met with in retroversion of the gravid uterus, fibroids, or pelvic cellulitis. At the present time we have in Prudhoe ward a case of hæmatoma of the left broad ligament, in which the history points to a ruptured tubal gestation; the extravasation is being gradually absorbed.

Within the last few months I have seen in consultation several times in the country a young lady who, when five weeks from her last period, was suddenly seized with severe pelvic pain and faintness, which, however, soon passed off; next day, whilst out driving, she had a similar but aggravated attack. When I saw her a few days later, there was a mass in the region of the left broad ligament the size of a small cocoanut; this has increased so much that a month ago it not only occupied Douglas's pouch, but extended above the pelvic brim on the left side; this is doubtless a hæmatoma of the broad ligament, probably from a ruptured tube, and the increase in size may be due to the continued growth, as sometimes happens, of the placenta after the death of the fœtus. As, however, there has been no further increase for the last few weeks, and as the patient's general condition is very good, the indication is not to hastily interfere.

The diagnosis is by no means easy when gestation has gone on between the layers of the broad ligament or in the peritoneal cavity itself. As a rule, you will be able (especially after administering an anæsthetic) to find the uterus displaced upwards and a good deal enlarged, so much so indeed that it might be thought an early *intra-uterine* gestation was also present. The fœtal heart sounds may be heard in an unusual situation, and the various parts of the fœtus may be felt with an exaggerated distinctness. Sometimes, as in Dr. Edis's case, a well-marked souffle, exactly resembling the uterine souffle, can be heard. In a case which came to my out-patients' department some years ago, the fœtal head was in Douglas's pouch, and the various sutures could be distinguished with the greatest ease through the thin vaginal roof.

My remaining remarks must be devoted to treatment. Until comparatively recent years, the method of treating early tubal gestation had been the endeavour to bring about the death of the fœtus either by drawing off the liquor amnii, by injecting drugs, such as morphia, into the cyst, or by means of electricity; indeed, even at the present day most, if not all, of the leading text-books on Midwifery recommend the adoption of one or other of these measures; but I trust, gentlemen, that none of you will ever sanction such an uncertain and dangerous mode of treatment, for you must remember that danger to the patient does not end with the death of the fœtus.

If, then, from the symptoms and physical signs, you diagnose tubal pregnancy *before rupture*, urge most strongly that the abdomen be opened without delay, for the woman's life hangs on a thread which may snap at any moment; and even if it should prove on examining the tube after removal that it is distended simply with either pus, serum, or blood, still the right course will have been adopted, and the risk from such an operation, carefully done, is nowadays comparatively slight. In my second case I can take very little credit to myself; for although on first seeing the patient I diagnosed tubal pregnancy, I did not follow the advice I have just given you, but watched the case for a few days, so that when I performed abdominal section the tube had actually ruptured. Had this woman died, her death would have been an unceasing reproach to me, and I certainly then learnt a never-to-be-forgotten lesson. When a woman becomes profoundly collapsed endeavours should be made to rally her by the injection of ether hypodermically; but even here probably the best chance of saving her life is for the abdomen to be boldly opened; and, if the case prove one of ruptured tubal gestation, the blood having been quickly turned out, the bleeding vessels can be secured. Never forget that rapid and great collapse may depend upon the rupture of some viscus or the perforation of an ulcer; but laparotomy would, or ought to, reveal the lesion, and perhaps enable the patient's life to be saved. I know of a case in which a physician, having diagnosed a perforating ulcer of the stomach, called in a surgeon and requested him to operate on it. When the abdomen was opened the ulcer was not detected; but, for some reason or other, the uterine appendages were removed. Post-mortem examination revealed a recent perforation on the *anterior* surface of the stomach!

When a tubal gestation has ruptured and the blood has been effused between the layers of the broad ligament, the case does not assume so grave an aspect as in the last variety, nor does it as a rule call for immediate interference, for in many instances the fœtus dies, and it, with the blood, becomes gradually absorbed. If, however, the fœtus continues to grow, an operation will be necessary, and then the question arises, Should it be performed directly the diagnosis is arrived at, irrespective of the stage to which the gestation has advanced, or should it be postponed until after the viability of the fœtus? My answer to this is that in cases where the fœtus has nearly approached a viable age, its claims must be allowed; and whilst carefully watching the mother, we ought to delay operating until we can do so with the probability of saving both mother and child. But on the other hand, where the gestation has only reached the fourth or fifth month, it seems to me unwise and unjustifiable to allow the patient to run the risks incidental to her condition for a period of several months. Now, in these cases, with the distension of the broad ligament, the parietal peritoneum gets stripped off the pelvic and lateral abdominal walls, so that Mr. Lawson Tait (in his lectures on Ectopic Pregnancy, which I recommend you to read) advises that the incision be made, not through the linea alba, as is customary, but well out to the side on which the pregnancy is supposed to be; and in this way the gestation sac can often be reached without opening the general peritoneal cavity. After removal of the fœtus, the placenta must on no account be interfered with, as the great danger is profuse and uncontrollable hæmorrhage, due to the early separation of the placenta, before the vessels supplying it have become firmly thrombosed. Another danger is the occurrence of septicæmia from the sloughing away of the placenta. To avert this, after the edges of the sac have been stitched to the edges of the abdominal incision, the custom has been to use frequent antiseptic irrigations and to dress the wound antiseptically. But Mr. Tait recommends a plan which I shall certainly adopt when the chance occurs—viz., after cutting the umbilical cord as close to the placenta as possible, and emptying the cyst carefully of its fluid contents, he hermetically shuts in the placenta in the cyst by the accurate coaptation of the edges of the incision in its wall. As there

is much less risk of hæmorrhage from the placenta in those cases where the fœtus has been dead for days or weeks, some authorities recommend that abdominal gestations should be allowed to go on to, or even beyond, full term, and not be interfered with until after the death of the fœtus. I advise you not to adopt this course, because it sacrifices the life of the child needlessly, and also necessitates the mother being exposed to danger for a prolonged period. Lastly, the incision through the abdominal wall is almost always preferable to that through the vagina, even in those cases where portions of the fœtus can be felt in the pouch of Douglas.

THE TREATMENT OF PROLAPSE OF THE RECTUM BY EXCISION.

By FREDERICK TREVES, F.R.C.S.,
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(Concluded from page 397.)

CASE 2.—Eliza G——, aged forty-three, was admitted into the hospital on Oct. 6th, 1889. The patient was a thin, unhealthy-looking woman, who had suffered severely from "ulcers" and "sores" in her childhood, and who presented on her limbs many strumous cicatrices. She was first troubled with prolapse twenty years ago, and the bowel had descended from time to time during this period. The prolapse had never occurred except in association with defecation, and she had only recently been able to reduce it without assistance. During the twenty years she had been to the hospital a great many times to have the protrusion reduced. She was subjected to an operation for the cure of the prolapse eighteen years ago, but she only remained free of the trouble for twelve months after the operation. Another operation was performed five years ago, but the prolapse reappeared within a month or so of her leaving the hospital. On both occasions she understands that the bowel was "burnt." She had been to the receiving room of the hospital five times during the present year to seek relief, the prolapse having on each occasion become irreducible. The bowel now comes down with each act of defecation, but the patient can usually replace it herself. The protrusion is covered with a healthy mucous membrane, and measures four inches in length. She has had several children, and ascribes the trouble to the result of her first confinement. The perineum is sound. The prolapse was excised on Oct. 11th by precisely the same method as has been already described. The sphincter was, however, not touched. Eight clamps were applied to the bleeding points; but when they came to be removed, it was found that only four arteries needed a ligature. I sutured the mucous membrane to the skin in the manner detailed, but employed only nine silkworm-gut sutures for the purpose. The prolapse was of mucous membrane only. The patient's recovery was retarded by an attack of pneumonia, which was ascribed to exposure during the operation. The bowels were opened on the fourth day; the sutures were removed on the tenth day. The part healed up kindly, and with no more pain than would attend a favourable operation for hæmorrhoids. Her bladder remained irritable for several days. A suture was unfortunately overlooked, and caused her a "pricking pain" on defecation, which ceased when the suture was discovered and removed. She left the hospital on Nov. 14th, and had by that date regained complete control over the sphincter. In this case there was singularly little local disturbance after the operation, which is remarkable considering the cough and the embarrassed breathing. But for the attack of pneumonia, her recovery may be spoken of as being easy and uncomplicated. The dilatation of the anus was not great, and I made a point of introducing as few sutures as possible. As every trace of the relaxed mucous membrane was removed, and as that tunic was well drawn down before it was excised, it may be inferred that the condition is cured. The tube of mucous membrane removed measured nearly eight inches when extended upon a flat surface.

CASE 3.—Richard D——, a sailor, aged thirty-six, was admitted into the London Hospital on Feb. 20th, 1889, with a very large prolapse of the rectum, which proved to be an example of the "complete" form. He had been in command of a small steamboat in the Straits Settlements for the last twelve years. He had suffered from ague and from chronic dysentery. Apart from this he was a strong, healthy, and vigorous man and had never been laid up. He was temperate, gave no history of syphilis, and had never been the subject of either stricture or hæmorrhoids. The prolapse was first noticed four years ago, and appeared in connexion with an attack of dysentery which was associated with much rectal pain and tenesmus. The bowel at first only came down during defecation. It then came down occasionally when he coughed or greatly exerted himself. During the last two years the prolapse gave him almost constant trouble. It descended from the least cause, and although it could always be reduced, the difficulty of keeping the bowel up had become within the last twelve months almost insurmountable. The nature of the patient's occupation compelled him to neglect the prolapse on many occasions. His chief complaints during the last twelve months have been distressing and most painful tenesmus, loss of control over the anus, the escape of bloody mucus and of fæcal matter, and great irritability of the bladder. On one occasion the patient had to leave the bridge fourteen times in three hours. He spoke of himself as being "nearly ruined in clothes." On account of the little control he had over the anus he was compelled to dine alone and to isolate himself as much as possible. Defecation caused him great distress. The motions during the last twelve months had been shaped "like lead pencils," and had to be squeezed out of the prolapse with the hand. He was at last compelled to give up a lucrative post and return to England. The prolapse was very large, of conical shape, and covered with healthy mucous membrane. The base of the cone measured no less than ten inches and a half in circumference, and its length was about five inches. When the prolapse was reduced the size of the anus appeared enormous. It remained open and showed little or no disposition to contract. He could retain neither flatus nor fæces, which indeed escaped without his knowledge. The lumen of the prolapse was very small and contracted, and would only admit the finger. When the prolapse had been reduced, and then examined with the finger in the rectum, it felt like a large soft foreign body with a central tube made of cartilage. The prolapse was excised on Feb. 22nd. The patient was placed in the lithotomy position, and the prolapse drawn down to its full extent in the manner already described. The mucous membrane forming the outer wall of the prolapse was now prepared for separation around the entire base of the cone, the knife traversing the skin close to its line of junction with the mucous membrane. This tunic was then separated from the prolapse by the scissors aided by traction, and was everted down to the apex of the cone, as in the previous cases. The protrusion, quite bared of mucous membrane, was now exposed. It felt hard and firm, except at its anterior part, close to the anus. Here there was evidence of a protrusion of peritoneum. The wall of the cone was at this point flaccid, and compared very markedly with the firm wall presented by the rest of the prolapse. The buttocks had been well raised to hinder the protrusion of any coils of small intestine, and no evidence of such a hernia existed. I then cut across the prolapse at the level of the anus—i.e., at the very base of the cone. I divided the anterior wall first, and opened the peritoneal cavity; the opening was at once plugged with a sponge. The rest of the prolapse was then severed rapidly with scissors. The cut end of the bowel, muscular coat and mucous coat together, was seized with pressure forceps in the manner already described. It was thus held in position, was prevented from retracting, and all bleeding points were secured at once. The small plug of sponge having been removed, the first care was to close the peritoneal wound; this was done by means of some six or seven points of the finest chromicised catgut. I next attached the divided end of the bowel to the margin of the anus. The sutures involved the whole thickness of the wall of the rectum, and as much as possible of the subcutaneous structures about the anus. A suture involving merely the skin and the mucous membrane would obviously not have met the needs of the case. As the pressure forceps were removed, to prepare each segment of the divided rectum for fixing in place, any bleeding point made evident was ligatured; the suture material was of silkworm gut. The bowel had been divided above the greatly thickened and hypertrophied part which formed the prolapse, and the segment attached to the anus was thin and in every respect normal. The anus, as it appeared at the

time of the operation, was of immense size. The external sphincter appeared as a quite considerable ring of muscle. The part removed measured five inches in length, and upon its anterior surface was nearly three square inches of peritoneum. Although the mucous membrane was represented by a double fold, one covering the outer surface of the prolapse and the other lining its lumen, the muscular tunic was represented by only a single tube. The internal sphincter formed the apex of the protrusion, and thus it happened that four inches and three-quarters separated the external sphincter from the internal. The muscular coat of the rectum had descended bodily, and had carried the mucous membrane before it. It had not been turned "inside out," but had been prolapsed precisely as if it had been a solid organ like the uterus. It is hardly necessary to point out that, structurally and morphologically, the two sphincters are quite distinct; they are developed separately and belong to separate embryonic parts. The internal sphincter had in this instance formed the apex of the protrusion just as the ileo-cæcal valve forms the apex of the ileo-cæcal form of intussusception. The tissues of the prolapse presented no evidence of disease beyond that afforded by the thickened and contracted muscular tunic. The lumen of the tube admitted the forefinger, but it was readily dilated after removal. There was no suggestion of any stricture in the part removed, and no trace of a polypus or growth.

The patient recovered rapidly and without a bad symptom. The temperature for twenty days after the operation was normal in the morning, and rose to 100·2°, to 100·6°, and even to 101° in the evening. This was attended by no sort of constitutional disturbance, and appeared to follow the lines of that rise of temperature which often appears after operation in the subjects of chronic malarial poisoning. He had very little pain after the operation, certainly less than is common after an operation for hæmorrhoids. He was troubled with retention of urine, and required a catheter to be passed for several days. Flatus was passed involuntarily. A dose of castor oil administered on the seventh day produced a copious evacuation, which contained many large scybala. The bowels after this date acted regularly, and the motions were passed involuntarily. No sutures were removed until the thirteenth day. Four were then taken out. They were causing no irritation, and the wound, which had been dressed with iodoform merely, and had been washed with weak carbolic lotion many times a day, appeared to be soundly healed. Not a drop of pus was formed. The patient got up on the nineteenth day. All the stitches had been removed by the twentieth day. The patient had now some little control over the anus. At the end of five weeks he was daily in the garden. In six weeks he was discharged as well. He had no local symptoms of any kind, the bowels acted regularly and well, and without pain. He had regained control of the anus, and, as he expressed it, he had "ten minutes' notice of a motion." The patient came to be inspected some months after the operation, and was then in sound health in all respects, and bore singularly little local evidence of the extensive operation.

Some brief notice may now be taken of the chief operative measures advised for the cure of such intractable forms of prolapse as fail to yield to the simpler modes of treatment.

1. Subcutaneous injections into the ischio-rectal fossa. The fluids employed consist of solutions of ergotin, nux vomica, or carbolic acid. Vidal claims three cases of cure by the use of ergotin. In one of these no less than twenty-two injections were employed. The procedure would appear to be followed by severe pain and spasm of the sphincter and to be uncertain in its results and tedious in its employment. It can scarcely be considered to be founded upon sound scientific principles, or to be a measure devoid of reasonable risk. At least one fatal case of poisoning is reported to have followed the injection of nux vomica.

2. The application of nitric acid. This measure aims at promoting cure by producing such a cicatrix as will cause the complete contraction of the mucous membrane. It seeks also to promote adhesion between the coats of the disorganised bowel. The method may be spoken of as little less than barbarous, and as representing a survival of an evil period in the surgery of the past. The operation involves extreme pain, and is apt to produce extensive sloughing and severe inflammation of the rectum. It has been followed by fatal hæmorrhage and by stricture of the lower part of the bowel. The after-treatment is not infrequently protracted. Mr. Harrison Cripps mentions a case in which apparent cure followed three applications of nitric acid and a period of treatment extending over four months.

3. The application of the actual cautery to the mucous membrane of the prolapse or the removal of linear folds of that membrane by means of the clamp and cautery are measures which are little superior to that just described. The treatment is painful, a severe degree of inflammation is excited, sloughing is inevitable, the special dangers of a burn are introduced, and more or less cicatrisation is unavoidable. During the use of the clamp and cautery the weakened bowel has given way and coils of small intestine have escaped.

Of all these methods it may be said that they are clumsy, uncouth, uncertain, and unsafe, that they are not in accordance with the teachings of modern surgery, that they offer the least satisfactory mode of dealing with the affection, involve a protracted and painful period of treatment, and incur unnecessary risks. By excising the part a clean incision is substituted for a burnt and gangrenous surface, the operation area is reduced to a minimum, no damaged bowel is left in the pelvis, hæmorrhage may be rendered practically impossible, and the risk of a subsequent stricture can hardly be said to exist. The method is simple and final, it involves no protracted period of after-treatment, it induces but little pain, it leaves a simple wound which is open to inspection, and it appears to offer the best claims for being considered a method of "radical cure." Kleberg's method of removing a prolapse by means of elastic ligatures, aided by the liberal application of chloride of zinc, is a needlessly severe, complicated and dangerous operation, which does not appear to have been adopted by any other than the inventor. It would seem that in three cases treated by this method two patients made a tardy recovery and one died.

Wimpole-street, W.

NEURITIS OF THE CIRCUMFLEX NERVE IN DIABETES.

By JULIUS ALTHAUS, M.D., M.R.C.P. LOND.,
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WHILE hemiplegia, monoplegia, and paraplegia are not unfrequently met with in patients suffering from diabetes, local paralyses owing to inflammation of peripheral nerves are of much rarer occurrence in that malady. Buzzard, in his recent work on paralysis from peripheral neuritis (London, 1888), is altogether silent on this point; nor is the subject alluded to in the second edition of Ross's "Diseases of the Nervous System" (London, 1883), or in Bastian's able Treatise on Paralyses (London, 1886). Leyden,[1] however, has recently stated that he has seen peripheral neuritis in diabetic patients, and that its clinical signs are very similar to those of alcoholic neuritis. He distinguishes three forms of it—viz.: (1) The hyperæsthetic or neuralgic form, in which the principal symptom is severe pain, generally in the sphere of the fifth or the sciatic nerve, the affection being mostly symmetrical; (2) the motor or paralytic form, in which there is paresis or paralysis of the lower extremities, mostly accompanied with neuritic pain; and (3) the ataxic form, or pseudo-tabes. Leyden's cases, however, appear to have been all of the multiple form (polyneuritis), and, as far as I am aware, no case of peripheral neuritis limited to a single motor nerve, and occurring in a diabetic patient without any other apparent cause than the cachexia, has as yet been recorded. The following case will therefore be of interest.

A merchant, aged fifty-six, consulted me in February, 1887. He complained of loss of power in the right arm, and gave me the following history: He had never had syphilis, but had for the last eight years been subject to diabetes, which did not cause much thirst or polyuria; he had not lost flesh, had a good appetite, and a regular action of the bowels. He slept well, but was much inconvenienced by a diminution of his walking powers, which made him disinclined for physical exertion. He had been well able to apply himself to business. Fourteen months ago he was suddenly awakened in the night by a severe burning pain in the shoulder, which presently spread to the elbow. He had not been exposed to wet or cold, and had had no

[1] Die Entzündung der peripheren Nerven, Berlin, 1888.

injury to the arm. In spite of treatment the pain continued for about three weeks, being always particularly bad during the night, and of a stabbing or boring character. All this time the arm was extremely sensitive to touch and movement, and had to be kept as quiet as possible. When the pain at last subsided, the patient found himself unable to raise the arm, while he had no difficulty in bending the elbow, or in moving the hand and fingers. He underwent treatment by electricity injudiciously applied, and by massage for three months, but derived no benefit from either; and considerable wasting about the shoulder-top had been plainly perceptible for some time. On examining the right arm, I found that it was hanging down seemingly lifeless by the side, and could only be abducted from the body to a very slight extent, in a direction forwards and outwards, but not at all backwards. The patient endeavoured to increase the extent of the abduction by calling into play other groups of muscles, raising the shoulder and stretching the wrist and fingers, but to no purpose. It was therefore evident that we had to do with paralysis of the deltoid muscle, which raises the arm to the horizontal line; and that the slight degree of abduction which could be produced was owing to the action of the supra-spinatus. The patient felt much inconvenience from this disability, being unable to wash and dress himself, to eat soup with his right hand, to light a gas-burner, to put his hand into his trousers pocket, &c. He had trained himself to lift the paralysed arm with the left hand, then to bend the elbow and raise the shoulder in a quick manner, and managed to help himself somewhat in this roundabout manner; yet the trouble was only slightly lessened by this manœuvring.

The region of the deltoid appeared flattened from atrophy of its substance; the skin was flabby, and its sensibility diminished. The electric tests applied to the circumflex nerve and muscle showed clearly that there was degeneration. The faradaic excitability was entirely lost, and the voltaic response greatly lessened. Indeed, the middle and posterior portions of the muscle did not answer at all to a current of fifteen milliampères, while the anterior portion gave a sluggish C.C.C. with eight milliampères, the A.O.C. being barely perceptible. All the muscles in the neighbourhood of the deltoid were in their normal condition. The general health of the patient was fair. The heart and other great viscera were unaffected. The knee-jerk was sluggish, but could be obtained without difficulty; the dynamometer showed 75° in the right and 65° in the left hand. The urine had a specific gravity of 1028, and contained 2 per cent. of sugar and a slight excess of urea. The patient was of temperate habits. Under these circumstances the diagnosis could not be doubtful. The case was evidently one of acute neuritis of the circumflex nerve, having commenced with severe stabbing pain, which continued unabated for about three weeks, and having led to some degree of anæsthesia of the skin, and to atrophy of the tissue of the deltoid muscle. In the absence of injury, exposure to wet or cold, alcoholism &c., the cause of the inflammation was evidently toxic, and had to be sought in the saccharin condition of the blood. I prescribed codeia and a moderately restricted diet, and treated the paralysis with faradisation of the skin by a large wire-brush, and six to eight milliampères of the constant current, to which occasional hypodermic injections of strychnia were added. After six weeks of this treatment, the patient having attended every other day, the electric tests were much improved, the anterior portion of the deltoid responding well to four milliampères, the middle to seven, and the posterior to ten, while slight fibrillary twitches appeared under the influence of faradisation. The arm could be much further abducted from the body, and the patient was able to put his hand into his trousers-pocket, and eat soup with the right hand. The treatment was continued for another two months and a half, after which the patient had completely recovered the use of the arm. The electric tests, however, more especially the faradaic, were still more sluggish than on the other side. The quantity of sugar had remained very nearly the same throughout the whole time. Some months afterwards I put the patient on antipyrin, during the use of which the sugar disappeared from the urine; but when this medicine was discontinued the sugar speedily returned.

The case just related shows that important nervous affections may occur in the course of diabetes where this is by no means severe, either regarding the quantity of sugar contained in the urine or the intensity of the constitutional disturbance attending the saccharin condition of the blood. In this particular diabetes resembles diphtheria, syphilis, and other toxic diseases in which the more specific symptoms may be slight, and yet the nervous system may subsequently be very considerably damaged. As for treatment, we have repeatedly noticed that severe diet, followed by the complete disappearance of sugar from the urine, is apt to do harm rather than good in any nervous affections which may have cropped up in the course of diabetes; while with a moderately restricted diet and treatment by measures specially intended for the nervous malady *per se*, the prognosis of the whole class of these affections is tolerably favourable.

Harley-street, W.

REMARKS

ON ORBITAL TUMOUR FROM MUCOUS DISTENSION OF THE FRONTAL SINUS, WITH CASES.

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ALTHOUGH several cases of distension of the frontal sinus have from time to time been reported, the disease must be comparatively rare; for some text-books on general, as well as ophthalmic, surgery are silent on the subject, while in others the authors do not apparently speak from personal experience. This rarity, no doubt, accounts, to some extent at least, for the somewhat indefinite notions which still seem to prevail with regard to the nature of this affection. It is variously spoken of as a "cyst," "hydatids," "chronic abscess," "encysted tumour," &c., each writer having his own, and apparently a different, idea of its pathology. In recent years examples have been published by Hulke,[1] Higgens,[2] and Lawson; and the last-named author has given an excellent description of its causes, symptoms, and treatment in his work on the "Diseases and Injuries of the Eye." In spite, however, of the best description, the diagnosis in the early stage is a matter of extreme difficulty. In this stage the swelling presents a variety of characters, differing essentially from each other in different cases, and suggesting the existence of exostosis, sarcoma, or other growth within the orbit; and it is only on the advent of fluctuation that we can feel any degree of certainty as to the nature of the affection we have to deal with. This want of uniformity in the symptoms is well shown in the following three cases, which have all come under my care within a period of a few months.

The causation of this affection has in some cases been traced to an injury sustained at a date much anterior to the first appearance of the symptoms; but it seems to me somewhat far-fetched to go back forty or fifty years for the cause of an affection of this description. In my cases no history of traumatism of any kind could be ascertained, and it does not seem difficult to account for the occurrence of distension of the frontal sinus in the case of any person subject to "colds in the head." The infundibulum—the narrow channel which serves as the means of exit for the contents of the sinus—may very easily, under the influence of catarrh, become blocked up by the swelling of its walls. If this swelling should continue for a certain time, the contents of the sinus may become so thickened as to be incapable of escaping through such a sinuous and contracted passage, and thus the accumulation may go on indefinitely, pushing before it the walls of the cavity in all directions. That portion of the walls which separates the sinus from the orbit, being the thinnest and most yielding, gradually gives way before the constantly increasing contents, and a tumour is then observed at the inner and upper angle of the orbit, the attention of the patient being thus for the first time drawn to his condition. The Fig. is from a photograph of Jane R—— before operation.

As already mentioned, and as will be seen from the cases, this tumour may be mistaken for an exostosis, a sarcoma, or a chronic abscess of the orbit, according to the stage at which it comes under observation. It may also be mistaken

[1] Oph. Hosp. Rep. [2] Guy's Hosp. Rep.

by the inexperienced for a distended lacrymal sac; but, as Mr. Higgens truly says, "there are certain marked differences between the two. Thus, the position of the swelling in distension of the frontal sinus is different; it is high up at the inner angle of the orbit instead of beneath it; it cannot, like the distended sac, be emptied on pressure, nor can any of its contents be squeezed out through the canaliculi." One of my cases (No. 2) shows that Mr. Higgens is not quite accurate as regards emptying the sac on pressure, for I found accidentally that the tumour could be made to disappear almost entirely by pressure with the fingers; but it is quite true the contents did not find exit through the canaliculi, for the matter could be seen to trickle down the throat, or to escape by the anterior nares, according as the head was held forwards or backwards while the pressure was being made. This fact might be utilised on future occasions in cases like the one referred to, in which the passage from the cells to the nostrils is not quite impervious, but in which the contents are so thick that they cannot escape by their own weight. Once the matter was discovered to flow into the throat by pressure on the tumour, there could no longer be much doubt as to the nature of the latter. At a later stage, when the bone has become absorbed and the skin begins to be stretched, suppuration is apt to take place, and the tumour may then be mistaken for an abscess. Suppuration took place in Case 3, but it was apparently subcutaneous, and did not involve the contents of the frontal cells; for when the abscess was opened, and the matter had escaped, the skin healed over again without any apparent diminution in the size of the swelling.

My own experience agrees with that of others that in many of these cases an exploratory incision is the only certain means of diagnosis.

As regards treatment, the most rational plan which seems to suggest itself, in addition to the emptying of the cells, is the re-establishment of the communication between the sinus and the nostril. I think that in the majority of cases where the operator has been content with cutting simply into the tumour and evacuating its contents, without making the above-mentioned communication, a sinus has remained at the seat of the incision either permanently or for a long time. This must be very objectionable to the patient, and it is very desirable to bring about a firm scar if possible. That this may happen occasionally without establishing a communication with the nostril is proved by Case 1, which I saw last in July, 1889, seven months after the operation, when the cicatrix was quite strong, and there appeared to be little abnormality beyond a slight fulness on that side of the orbit. It is evident, however, that if a free passage into the nostril can be established the chances of rapid and firm healing are greatly enhanced. It has been suggested that the natural channel should be dilated through the nostril, but I imagine it must be extremely rarely that such a feat can be accomplished. Most operators have adopted the plan of making an artificial opening between the two cavities and of introducing a drainage-tube to keep it patent. For this purpose I found a Volkmann's spoon very useful, and there was much less difficulty than I had anticipated in penetrating the thin layer of bone and membrane which separates the two cavities. The partition has become so thin by continuous pressure, that a large opening is easily made, and I do not think it is necessary to retain the drainage-tube for such a long period as four or five months as recommended by Mr. Lawson.

CASE 1.—Miss W——, aged sixteen, consulted me in December, 1888, for a swelling which had been noticed about two years previously at the left side of the root of the nose. The swelling was painless, and had caused no inconvenience beyond an occasional interference with the normal flow of tears which coursed down the cheek at times. The tumour was found to be of bony hardness, somewhat pointed in shape, and slightly irregular to the feel, this irregular point being apparently the nasal process of the superior maxillary bone pushed out. No fluctuation could be felt, but on deep pressure the bone seemed to move slightly. There was some catarrh of the nostril. I was inclined to think the case was one of exostosis, pushing the bones of the orbit before it. Under ether an exploratory incision was made over the tumour at its most prominent part. While separating the soft parts the knife happened to slip a little to one side, and a drop of muco-purulent, gelatinous fluid oozed out of the opening thus accidentally made. This opening was enlarged so as to admit the nozzle of a syringe. On working the syringe filled with carbolic acid lotion, a large mass of whitish, thick mucus escaped in front of the lotion *without mixing* with it. A cavity remained into which a probe could be passed for about an inch and a half in all directions. A drainage-tube was inserted and the cavity was syringed out daily. There was very little reaction after the operation, and the tube was removed in a fortnight, the patient returning home to the country on Jan. 25th, 1889. She returned to see me on April 3rd. The sinus had closed three weeks previously, and there was left a firm linear scar with slight œdema in its vicinity. When last seen (July 11th) the œdema had disappeared, and there was no deformity beyond a slight fulness. In this case the swelling never was of sufficient size to cause displacement of the eye, and the patient had not suffered from any visual inconvenience.

CASE 2.—Mrs. B——, aged forty-seven, came for advice to the Wigan Infirmary on Nov. 2nd, 1888, on account of a swelling at the upper and inner angle of the left orbit. It had been first noticed three or four months previously. The eye was slightly displaced forwards and outwards. There was tenderness over the eyebrow. The eye itself was normal in appearance, and there was no optic neuritis or diplopia; V=⅔ without a glass. The swelling was soft and yielding, but no fluctuation could be made out. There was no history of syphilis, and there was nothing remarkable in the nostril. No diagnosis was made, but I suspected a sarcoma. The patient was, however, ordered iodide of potassium internally. On Jan. 3rd, 1889, fluctuation was felt at the apex of the tumour. A trocar was inserted, and a drop or two of what appeared to be thick pus appeared at the end of the cannula. An incision was then made, but no pus flowed. Fifteen days later, the skin having healed over, this operation was repeated by Mr. Barnard, the senior house surgeon, but with no more success than on the former occasion. On Feb. 8th the tumour was noticed to become smaller on pressure, and the patient said she felt something running down her throat. On examination, a stream of thick muco-purulent matter was seen flowing down the posterior wall of the pharynx, and on holding the head forward while the pressure was being made, the matter could be made to flow through the nostril anteriorly. On looking into the nostril it could be seen to issue from above the middle turbinated bone. There was now slight œdema of the eyelid and skin over the tumour. On March 26th, chloroform having been administered by Mr. Lomas, junior house surgeon, I made a semilunar incision over the tumour about three-quarters of an inch long. About an ounce of muco-pus escaped from the cavity, which was then explored with the finger and found to be the distended frontal cells. By means of a Volkmann's spoon the partition between the cavity and the nostril was broken through, and a curved probe carrying a drainage-tube was introduced into the cavity and brought out through the nostril. The cavity was then syringed out, and this process was repeated daily.—May 6th: A good deal of pus has been discharging by the side of the tube through the incision, but not much through the nostril. The patient complained of a good deal of pain and tenderness over the side of the head, and it was thought advisable to remove the tube. Matter continued to flow freely for some time, but when last seen on Jan. 3rd, 1890, it had all but ceased, and the incision was closing.

CASE 3.—Janet R——, aged thirteen, came first to the Eye and Ear Infirmary on May 11th, 1885, and the following note was made by Mr. Shears, senior assistant surgeon: "Swelling at the inner angle of the left eye, first noticed twelve months ago; it is firm, rounded, and elastic, presenting externally over the situation of the left lacrymal bone, and extending backwards along the inner wall of the orbit as far as can be felt. It is painless and non-pulsatile. Movements of the globe unimpaired. The skin moves freely over the tumour. V=$\frac{6}{9}\frac{6}{9}$, partly, in each eye. Fundus normal." The patient was kept under observation, and in about four months the swelling had disappeared. In Feb. 1887, the patient presented herself again, the tumour having reappeared a fortnight previously. Examination of the nostril showed hypertrophy of the middle turbinated bone on the left side. A mixture of iodide of potassium was given, and by May 2nd the swelling had again "completely disappeared." Two years later, in Feb. 1889, the patient returned with the swelling as before. The skin over the tumour became inflamed on its anterior aspect, and an abscess formed. This was opened and some healthy pus escaped, but the main swelling remained undiminished, although a probe passed deeply into the sinuses. The abscess was clearly superficial, as the skin healed quickly after the discharge of the pus. On March 31st the patient was taken into the infirmary. Ether was administered by Mr. Hugh E. Jones, assistant surgeon, and an incision was made into the tumour. The cavity was then syringed out, and a drainage-tube inserted, as already described in Case 2. This was left *in situ* for six weeks. After the removal of the tube, the incision quickly healed, and the patient remains quite well at this date, Dec. 1889, there being no abnormality left except a slight fulness in the region of the scar, which is almost imperceptible. The headaches from which the patient had suffered have entirely disappeared.

Liverpool.

A COLLECTION OF CASES OF HYDROPHOBIA REPORTED AS SUCCESSFULLY TREATED.

BY F. LUCAS BENHAM, M.D., M.R.C.P.

THAT hydrophobia is the most fatal of diseases everyone will admit; as yet every reputed specific remedy has proved more or less vain, nor does any one line of treatment uniformly appear to give relief, much less bring about a cure. However, it is beyond doubt that cases have recovered from time to time, often seemingly as the result of well-devised measures, though sometimes it looks as if success has been merely stumbled upon in individual instances, for when the same practice has been repeated it has many times failed. This failure may perhaps be due to the total inadequacy of our resources, but very likely the sufficiency of the remedy is not altogether to blame; some want of skill, or rather misapplication of the means to the particular case, or even want of favourable opportunity, has prevented the hoped-for good fortune. To do any good at all the disease must be recognised promptly and combated decisively, and this conjunction really but seldom happens; for, owing to not being summoned at the very outset, or not recognising such an uncommon disorder in its earliest stages, the opportunity is lost; and even if a correct diagnosis is made early, sufficiently energetic measures are very rarely attempted. As to the infrequency of meeting with the disease, many practitioners may be as unfamiliar with it as Heberden, who lived ninety years without seeing a single case. It is to be regretted that hardly any cases have been reported as recovering in any of our large hospitals, where they would be well observed and fully described, but there may be some reason for this scarcity; there must necessarily be some delay in getting the patient conveyed there after the malady is distinguished, so that valuable time is lost; then the patient is exposed more or less to the bustle of the institution, and is perhaps consigned to a surgical ward; and lastly, really efficacious treatment is but seldom employed. What wonder, then, that the result is fatal.

On account of the almost uniform fatality of the complaint, it has often been urged that cases of alleged recovery are not genuine. This may be true of some, but not of all. Before deciding positively on some of the doubtful cases, it would be necessary to determine certain points which are as yet unsettled—e.g., what are the variations from the typical forms of the disease? and what are the limits to the period of incubation? The incubation period has been known to vary extremely in acknowledged fatal cases—from eight days or less[1] to five, seven, and ten years.[2] Also, cases have occurred where the dog had only a slight attack, or did not develop rabies till some days after inflicting the bite, or even showed no marked signs of rabies at all. In some cases of unusual period of incubation, it is just possible that inoculation may have been caused by another and unnoticed wound. It is sometimes said that these alleged cases are really hysterical simulation; but it is just as probable that these so-called spurious cases, which soon get well, are really genuine, especially if it can be shown that many genuine cases have really been cured. Hysterical symptoms and queer mental derangement commonly form part of the manifestation of hydrophobia (hence the old name "canine madness"). It is very unlikely, too, that fear and anxiety could produce the symptoms; they might possibly lead to insanity, but would not give rise to a disease of so peculiar a character and course, and so rapidly fatal as hydrophobia. Besides, the fear &c. which are said to be the cause are probably but symptoms of the disease itself, and it is often particularly noted that the patients were not suffering from fear or anxiety previous to the onset of the attack. It is known also that the virus of rabies may induce slighter nervous disorders or abortive attacks—e.g., of fifteen persons bitten by a mad wolf,[3] four died untreated, the rest were treated by mercury; of these, two died (possibly from some other disease), the others recovered, but "most experienced, nearly at the same time, symptoms of nervous affections, probably from attenuated virus."[4] Also the case of Dr. Adami,[5] who, about twenty days after inoculation by the body of a rabid deer, and while undergoing Pasteur's treatment, became affected for some time with local pain and depression of spirits, and even slight constriction of the throat—probably an abortive attack. Perhaps Crosse,[6] who overcame slight threatening symptoms by "will" and muscular exertion, affords another example. Moreover, in some of the fatal genuine cases history of infection is not clearly made out; therefore it is not to be insisted upon that it should always be shown to prove the case genuine. Whether or not there is an idiopathic form of the disease—so-called "spontaneous hydrophobia"—like to and as fatal as rabies proper, but quite independent of infection, is a difficult question to answer. With the object of suggesting what are the most promising methods of treatment, it may be of some use to make a collection, as is done below, of cases of supposed recovery, whose genuine nature is certain or probable, as a guide for future attempts and further improvement. Rush, in his excellent essay on Hydrophobia,[7] makes some observations worth quoting. "Bleeding is the first remedy; to be effectual it should be used in the most liberal manner; probably 100 to 120 ounces would be necessary. It has been used in some cases without effect, but probably out of time or too sparingly. I beg it may not be tried in this disease by any physician who has not renounced our modern systems of nosology and adopted in their utmost extent the principles and practice of Botallus and Sydenham in the treatment of malignant fevers. A physician in Virginia cured it by means of bark and wine. I have no doubt of the efficacy of these remedies when the disease is attended with a moderate or feeble morbid action in the system, for I take for granted it resembles other malignant fevers in appearing in different grades of force. In its more violent and common forms stimulants of all kinds must do harm, unless of such a nature and in such quantities as to exceed the force of the stimulus of the disease."

In THE LANCET of May 29th, 1886, it is remarked: "It is difficult to conceive that profound sweating can stay the course of a disease which seems to be due to the development of a living germ in the medulla oblongata." If this were a sufficient obstacle, a similar argument might prevent

[1] Gamgee in Reynolds's Syst. of Med., and Fleming on Rabies.
[2] THE LANCET, vol. ii. 1877, p. 226; Med. Gaz. 1837-38; Dublin Med. Press, 1842.
[3] Med. Commentaries, vol. viii., 1781-2.
[4] Two other slight abortive attacks are recorded by Professor Brera, Med. Chir. Rev., vol. iii., 1822.
[5] Brit. Med. Jour., Oct. 12th, 1889.
[6] Quoted by Tuke, Influence of the Mind upon the Body, p. 385.
[7] Med. Inquiries, vol. ii.

us from employing cold affusion in scarlatina and from other useful modes of treatment.

CASES TREATED CHIEFLY BY BLEEDING.

Case 1.—Chr. Nugent.[8] Female, aged twenty-two, bitten on finger by an undoubtedly rabid dog, June 24th, 1751. Hydrophobia appeared on July 27th, with pain in hand up to shoulder and throat, which seemed to strangle and choke her. Pain recurred in successive shocks. Could not bear sight or sound of water, or to swallow any. Paroxysms of short breathing and almost general convulsions. Was bled to 15 oz., 20 oz., and 12 oz. on July 27th, 28th, and 29th. Took cinnabar and musk and opium frequently. On Aug. 2nd could bear sight of water and became convalescent, though with slight relapse on Aug. 15th.

Case 2.—Pope.[9] Farm servant; three weeks after being bitten by a mad dog became delirious, had violent spasms, with dread of water &c. Treated in same way. Recovered quickly.

Case 3.—Tymon.[10] Male, aged thirty-four, bitten on thumb by rabid dog early in August. Attack began on Oct. 7th. Became very violent, agitated, and delirious, with severe characteristic spasms induced by approach of water &c. Was bled until scarcely any pulsation could be felt in either arm. Free mercurial inunction and large doses of opium. Next day spasms and horror of water were much less, and in another day almost *nil*. Was salivated. Convalescent on Oct. 11th.

Case 4.[11]—Bitten by same dog. Attack began on Oct. 7th; great pain in head; started and agitated by any gust of wind; much distressed by pouring out water; great flow of saliva. Mercurial inunction and purgative injections. Convalescent by evening of Oct. 8th.

Case 5.[12]—Bitten by dog, probably rabid, in middle of May. Oct. 6th: Agitated and dejected, with severe headache; refuses drink, putting it away with a sigh. Restless; ideas somewhat deranged. Treated as in last case. Recovered on evening of 7th. This seems a mild or incipient case.

Case 6.—Shoolbred.[13] Attack began on May 5th, eighteen days after bite in leg by dog believed to be rabid. Breathing hurried and panting or sobbing, with inspiratory convulsion of facial muscles and involuntary spasmodic startings of body, arms, and throat. Terrified expression. Water caused paroxysms. Bled to 40 oz. and again from 7 oz. to 8 oz. Calomel and opium. Practically cured by bleeding; recovered by 18th. The last four cases, which occurred in India, were certified as genuine by the India Medical Board.

Case 7.—Rice Wynne.[14] Cured by bleeding, but necessary to abstract blood rapidly (20 oz. in six minutes) to syncope; pulse scarcely perceptible for one hour, but convulsions abated and distress vanished. Opium given with ill effect. Bleeding repeated next day, after which patient recovered.

Case 8.—Burton.[15] Male, aged twenty-eight, bitten by dog suspected to be mad. Incubation twenty-four days. Attack began July 4th, 1803, after a few days' depression and pain in the wound. Could not swallow liquids, and sight of water threw him into convulsive agitation. Was violent and had signs of fever. Was bled to 122 oz. in four days. Mercurial inunction. Convalescent July 8th.

Case 9.[16]—Male, aged sixteen, severely bitten by an undoubtedly rabid dog. In course of time hydrophobia developed. Sight of water was unbearable and he could not swallow a drop, and paroxysms were brought on by the attempt. Became violent, and after debating how best to put an end to his sufferings, it was resolved that he should be bled to death. Accordingly his veins were opened and he was left at night in an out-house, bleeding freely. Next morning he was found alive, though faint and weak, but with all spasms &c. gone, and he eventually recovered. Unfortunately, owing to the decease of the author of this paper, "for the truth of which," it says, "many can vouch," it is impossible to obtain direct verification from the same source; but the account is fully narrated, and shows no evidence of being fictitious.

Case 10.—Bampfield[17] mentions a somewhat similar case, which he says he remembers to have read in an old magazine. It is that of a countryman in Norfolk, who wounded himself severely in a paroxysm of hydrophobia, losing so much blood that he nearly died before medical aid arrived. He made a good recovery, however. There is no reason to distrust the writer's memory, but it is a pity that he was unable to recall the name and date of the old magazine to which he alludes.

Case 11.—Hartley, author of "Observations on Man."[18] Groom, bitten on the hand by a mad dog in the end of November, 1732. Attack began Jan. 7th, 1733, with sickness, vomiting, vertigo, and restlessness; then the difficulty of swallowing came on. Was bled freely—120 oz. in all—under Hartley's directions, and cold baths were given. The attack was soon conquered. Convalescent Jan. 10th.

Case 12.—Peters.[19] Male, aged forty-five, bitten on thumb while drenching a dog supposed to be mad, which died the same evening. Patient was alarmed and apprehensive, and went to St. George's Hospital. Hydrophobia appeared in about fourteen days. Had much difficulty in swallowing liquid, and attempts brought on violent spasms. Was maniacal at times, and in great dread of doing mischief during the attacks. Venesectio ad deliquium (16 oz.), and was repeated; other medication besides. Symptoms abated. Recovered in about a fortnight.

Case 13.—Hillary.[20] Female, bitten by mad dog three months before. Illness began about four or five days before, and actual symptoms of hydrophobia noticed the day before treatment began. Patient being twenty miles away, was treated, according to Hillary's directions, by an apothecary, "whose description left no doubt that it was a case of hydrophobia." Could not drink or bear the sight of any liquids, and had to be tied in bed. Venesectio ad deliquium, repeated as often as it could be borne; dipped in cold water and held under as long as was safe. Then sudorifics and opiates. Recovery in forty-eight hours.

Case 14.—Vogelsang.[21] Female, aged nineteen, bitten seven or eight days before attack by a rabid dog, which died two days after inflicting the bite. Patient had not the least idea of the consequences of the bite. After two or three nights of disturbed sleep, symptoms of hydrophobia appeared, with great horror of water, frequent convulsive fits and secretion of thick saliva. Was bled to faintness (upwards of 30 oz.). Convulsions abated, patient slept, and awoke practically well.

Case 15.—Ligget.[22] Female, aged twenty, bitten by a dog, which died from rabies two or three days after. Incubation of from sixteen to eighteen days. Attack began with pain starting from seat of wound, stiffness of neck, and presently fits. Mind clear and conscious of approaching paroxysms, which were induced by any touch, current of air, or sight of any liquid. Urgent thirst, but total inability to swallow. Was bled to 36 oz., and calomel in one-drachm doses (four and a half drachms in all). Was salivated. Convalescent in four days.

Case 16.—Wrightson.[23] Male, aged fifteen, bitten five days before by a dog, which had since become rabid. Sight of water painful, and fits, of the approach of which he was sensible, came on, in which he was maniacal. After being bled to 12 oz. and opium prescribed, convulsive attacks became less and swallowing easier. Convalescent in a day or two.

Case 17.—Falkner.[24] Female, bitten in March, 1762, by a rabid dog. Two horses bitten by the same dog died of rabies, and about this time the patient was attacked by hydrophobia. After premonitory numbness and tingling in the bitten finger she was convulsed at times, and had an anxious expression. Rejected water with abhorrence when it touched her lips, and was delirious; when sensible, warning bystanders of her inclination to bite. Treated by copious bleeding, mercury externally and internally, became salivated, and recovered in a few days.

Case 18.—Fayerman.[25] Male, aged forty. On May 29th, while separating two dogs fighting, he was bitten by one, which ran away and was not traced. He had no suspicion of the consequences.—Aug. 12th: While at breakfast was

[8] Essay on Hydrophobia, &c., 1753.
[9] Whytt on Nervous Disorders, p. 430.
[10] Edin. Med. and Surg. Jour., vol. ix., 1813.
[11] Ibid. [12] Ibid. [13] Ibid.
[14] Extract in Edin. Med. and Surg. Journ., 1814, vol. x., p. 495, from a pamphlet, "Particulars of the Successful Treatment of a Case of Hydrophobia," Shrewsbury, which I have not been able to see.
[15] New York Medical Repository, No. 29.
[16] "Chapter in Real Life: a Tale of a Mad Dog." Chambers's Journal, Feb. 12th, 1884.
[17] Lond. Med. and Phys. Jour., 1812.
[18] Phil. Trans., vol. xl. [19] Ibid., No. 475.
[20] Observations on the Changes of Air and the Concomitant Epidemical Diseases in the Island of Barbadoes, second edition, 1811.
[21] Lond. Med. Repository, vol. iv.
[22] Amer. Jour. Med. Sci. and Ranking's Abstracts, vol. i. 1860.
[23] Med. Trans., vol. i. 1772. [24] Ibid.
[25] THE LANCET, vol. vi., p. 343.

suddenly seized with intense horror at the pouring out of fluid; spasms returned with extreme sense of suffocation. He would hardly believe that he had hydrophobia. Was bled to 30 oz.; musk given. Attempts to drink caused violent convulsion of fauces, face, diaphragm, &c. Liq. plumbi given in frequent large doses till paraplegia supervened next day. All urgent symptoms subsided in forty-eight hours from the commencement of the medicine. In four days all symptoms of hydrophobia were gone. Use of limbs returned by Sept. 26th.

Case 19.—Guisan.[26] Male, aged thirty-eight, had four deep contused wounds on the hand from bite of rabid dog on June 24th. A girl bitten by the same dog on the same day died of hydrophobia on July 26th. From July 19th to 23rd he suffered from an attack of perityphlitis, cured by bleeding and mercury. First symptoms of hydrophobia on 25th; decided on 26th. Painful constriction of throat; increased on trying to swallow; could not drink; respiration impeded, and had many paroxysms. Treated by further bleeding and arseniate of soda. Almost well by 29th.

Case 20.—Dubedat.[27] Female, aged thirty-two, bitten on March 18th by a dog, probably rabid. By April 22nd symptoms of hydrophobia were present; the wound was inflamed. She had general convulsions, constriction of the larynx, and foaming at the month. Paroxysms were produced by the sight of water. Lost control over herself, screamed, groaned, and tried to bite. Was bled to two pints, and later one pint; this greatly lessened the paroxysms, which were afterwards prevented by large draughts of vinegar. Well in a week. This case is not very clearly narrated, especially as to the suddenness of the attack. It seems too pronounced to be simply hysteria; and it shows at any rate the advantageous effect of bleeding.

Case 21.—Poupart.[28] Female, attacked with hydrophobia; cured by bleeding to faintness.

Case 22.—Russel.[29] This case is to be frequently found alluded to, though I have been unable to discover the original account. Twenty persons died of rabies at Eye about the same time. One who was affected was saved by large bleeding, and direct transfusion of lamb's blood.

CASES IN ANIMALS.

Bleeding is also said to have been successfully employed in curing rabies in animals; thus, Rush states[30] that two dogs were saved by cutting off the ears of one and the tail of the other. According to Edmonston,[31] after successive outbreaks of rabies in a pack of hounds, attempts were made at last to save some, though it was difficult to attack the disease in its early stage, its fatal course being so rapid. However, one dog was bled to faintness and recovered. Copland[32] also mentions that a cow that had become rabid was cured by bleeding.

(To be continued.)

A CASE OF SYPHILITIC GROWTH IN DURA MATER; OPERATION; DEATH FROM SEPTICÆMIA; NECROPSY.

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T. H——, a basket-maker, aged forty-seven, came under my care on May 21st, 1889. He stated that during the last ten years he had suffered much from rheumatic pains in the limbs. About five weeks previously he had been in the hospital for disease of the right knee-joint, and was discharged relieved. He contracted syphilis thirty years ago. He had had no other illness, no fits, loss of consciousness, &c., before the attack mentioned below. His family history was good, and no case of nervous disease or neurosis was remembered by him. He now complained of severe headache, chiefly on the left side of the vertex, for the past few weeks. He stated that after leaving the hospital and returning to work he had had a fit, in which the loss of consciousness was instantaneous, so that he could give no account of the mode of onset. The unconsciousness lasted three hours, and on coming round he discovered that he could not move the right leg at all for some hours. The leg has remained weak and tremulous since, and he drags it a little in walking. Dynamometer gave—Right hand, 34; left, 36; he is a left-handed man. The superficial reflexes were exaggerated, especially the plantar; slight ankle-clonus could be occasionally obtained on the right side; the knee-jerks were both exaggerated; the direct muscular irritability (to tap on mass of muscle) was especially exaggerated in the right leg. Sensation and electrical reactions normal; muscles weak and rather flabby, but not wasted. The measurements were—Right thigh, 15½ in.; right calf, 11¼ in.; left thigh, 16 in.; left calf, 11½ in. Aspect anæmic; temperature normal; obstinate constipation; thoracic and abdominal organs normal. Chronic disease of right knee-joint interfered to some extent with movement. The first fit occurred on April 27th, the second on May 30th. This last fit was preceded by a feeling of torsion in the right leg, then the right leg was forcibly flexed, the right arm and leg were convulsed, and he became unconscious, with general convulsions, lividity, and biting of tongue. Another fit next day, which began with a sensation of heat in the great toe, which ran up the leg and thigh. He now noticed that he was growing deaf, and had three more fits on July 15th and 17th. He at first took cod-liver oil and a mixture containing arsenic, iodide of potassium, and iron. This was altered after three weeks, on a return of the fits, to one containing fifteen grains each of bromide and iodide of potassium, with half a drachm of liquor hydrarg. perchlor., three times daily.

During the last fit his friends brought him to the hospital in a state of unconsciousness, and he was admitted. The next attack came on July 31st. He was putting on his stockings when he knocked his right big toe against the side iron of the bed; immediately twitching of the muscles of the toe came on, spreading to the other muscles of the leg and then to those of the right arm, and followed rapidly by general convulsions and coma. It is needless to recapitulate all the details of each fit; they now came more frequently. On Aug. 6th there was loss of power in the right hand, shown by his dropping his teacup one morning whilst drinking; this lasted for about a week, a note being made on Aug 12th that he was regaining strength in the right hand and arm. A new symptom now appeared at the onset of the fits; that is, that the right foot and leg remained almost still during the onset, whilst the heel of the left foot executed a series of rubbing movements over the inner side of the right ankle. Ankle-clonus was now obtained in both legs, most marked in the right. The dynamometer indicated—Right hand 19, and left 28. He had two more fits during August, and two on Sept. 3rd; during all this time he was liable to constantly recurring twitchings of the right foot and leg and to numbness of the limb. These twitchings—often the precursor of a general convulsion—were prevented from passing above the knee by tying a garter tightly round the thigh just above the knee-joint, but after two weeks the garter became ineffectual, and he described the "sensations" as passing up his leg under the garter; on these followed a fit. During all this time his daily dose of iodide and bromide of potassium had been gradually increased, so that for the last five weeks he took fifty grains of iodide of potassium and twenty-five of bromide three times a day. A week before the operation the iodide was discontinued, without any observed effect on his condition.

One or two points omitted in the above abstract of the case may be mentioned here. First, although both optic discs were pale, and the right especially so, there was no optic neuritis; acuteness of vision was fair; colour vision normal; both fields of vision contracted, especially on the outer side. Secondly, after each of the fits whilst in hospital his speech was much affected for some hours or even days, becoming indistinct or blurred, with forgetfulness of words and difficulty of expressing himself; he could, however, understand perfectly what was said to him, and was conscious of his speech defect. Lastly, in the later fits the face was drawn to the right. The state before operation then was as follows: Right hemiplegia, complete in leg and nearly so in arm, but with some power of movement at thigh and shoulder; slight motor aphasia, with the frequent occurrence of fits, which began with a definite aura in the right great toe, followed by spasmodic muscular twitchings

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[26] Gaz. d'Hôpital, Paris, 1854.
[27] Lond. Med. Gaz., vol. xiii., 1833-4.
[28] Bibl. Choisie de Méd., tom. xv., Paris, 1759.
[29] †Hist. Mag., 1792.
[30] Loc. cit.
[31] Lond. Med. Repository, 1816.
[32] Dict. of Pract. Med.

in the same, which spread up the right side, ending in general convulsions and coma of some duration; and on return of consciousness complete right hemiplegia of leg, arm, and lower part of face, with motor aphasia. On Sept. 5th Mr. Lansdown, the senior surgeon to the hospital, at my request trephined over the upper part of the fissure of Rolando, close to the anterior posterior mesial line of the skull. Reid's lines were used, and the operation performed under strict antiseptic precautions. The trephine aperture measured about an inch and a half in diameter; the bone was dense and very much thickened, and the dura mater firmly adherent to it. The dura mater looked opaque, and there was absence of pulsation over the exposed area. On incising the dura mater, it was found to be occupied by a dense growth, about half an inch thick, of almost cartilaginous consistence, white and slightly lobulated; it appeared to extend chiefly inwards and somewhat forwards. So far as possible it was removed, but from the close proximity of the longitudinal sinus, it could not be entirely removed in this direction. The subjacent convolutions had a perfectly healthy appearance. Mr. Lansdown replaced the button of bone, in the hope that its presence might stimulate the filling up of the area with new bone. For two days after the operation twitchings in the right foot muscles occurred, differing from those felt previously to the operation in being slight, in not lasting more than a few seconds, and in showing no tendency to spread. After the second day no twitchings occurred except whilst the head was being bandaged during the dressing of the wound. On the fourth day he appeared to be doing well, and had recovered to some considerable extent the use of the right arm and leg; slight ankle-clonus could still, however, be obtained on the right side. On the sixth day the first bad symptoms appeared; there was a rise of temperature, and almost complete loss of power on the right side followed; during the night and the following day he was partially comatose. The wound was reopened, and the button of bone with some matter around it removed, with slight temporary improvement in his condition; but he afterwards grew steadily worse, became completely comatose, and died on Sept. 24th.

At the necropsy, the calvaria was dense and very much thickened, with absence of diploe, and the dura mater everywhere adherent to the bone. On separating the flap of the operation wound, an abscess cavity was found, its walls covered with greenish-yellow pus, and its floor formed by the upper extremities of the ascending frontal and parietal convolutions; firm adhesions shut off this cavity except in a direction downwards and forwards, and in this direction the cortex was softened; the upper parts of the two convolutions above-mentioned were disorganised. In front and to the inner side of this area there were two masses of new growth, hard and cartilaginous in consistence, and smoothly lobulated; that to the inner side grew from the upper part of the falx cerebri around the superior longitudinal sinus, was nearly half an inch in thickness, and had exerted much pressure on the paracentral lobule, which was flattened by it; that in front was not above a quarter to one-third of an inch in thickness, and the subjacent convolutions showed no sign of pressure. The growth was evidently of old date, and except in the area above-mentioned there was no sign of any inflammation about it in any part. The incision in the dura mater had come close up to the longitudinal sinus, which had apparently been pushed aside. The other organs showed no lesion of any importance. On microscopic examination, the structure of the growth was evidently that of a very chronic syphilitic new growth; the motor convolutions showed signs of acute cerebritis decreasing in intensity as one proceeded away from the wound. The thickest part of the growth was that removed at the operation. Mr. Lansdown attributed the occurrence of suppuration to the irritation set up by the replaced button of bone. The reasons that induced us to recommend operation were that the patient's condition was rapidly growing worse, although anti-syphilitic remedies had been thoroughly persevered in for some time; that the seat of the lesion could be fairly accurately determined; and that both the patient and his friends were very urgent that any measures should be tried, which would, if successful, enable him to return to work. On the other, the morbid process being syphilitic, there was difficulty in determining the exact nature and seat of the lesion. The symptoms presumably might be due to (1) a node growing inwards from the cranial vault, (2) to repeated attacks of meningitis with resulting adhesions, (3) to chronic cerebritis, or (4) to a gumma, or with great probability to a combination of two or more of these processes. The presence of a rapidly growing tumour in the substance of the motor convolutions could be excluded with tolerable certainty in the absence of optic neuritis and other characteristic symptoms. On consideration it seemed most likely that the morbid process present consisted in the presence of a tumour outside the cortex and probably in the dura mater, its position being over the extreme upper ends of the ascending frontal and parietal convolutions, and that from this as a centre a zone of irritation spread through the surrounding cortex. The symptoms, so far as the position of the lesion was concerned, clearly pointed to the one above stated, the site of the aura, the order in which groups of muscles were successively convulsed, and the degree of paralysis remaining in the various groups after the fits all corresponding with this. The aura was felt always to begin in the right great toe, the muscles of the great toe and then those of the foot were the first to be convulsed, and after the fit the most completely paralysed; the muscles of the leg and thigh were next in order of convulsion, corresponding to the paracentral and upper third of the ascending frontal and ascending parietal convolutions as chiefly affected by lesion. Then followed convulsion of the arm and hand muscles, twitchings of the right angle of the mouth, with subsequent drawing of the face to the left, and motor aphasia indicating that the motor cells of the middle and lowest part of these convolutions, together with the base of the third frontal, had been discharged. Lastly, there was extension of symptoms to the opposite side. It was impossible, from the nature of the case, to say to how great an extent the mischief had spread; whether it could be completely removed or whether unforeseen complications would render the operation futile. We explained the nature of the case to the patient and his friends, and they wished the operation to be performed.

Two other interesting points in the case may be noted—first, that there was distinct deficiency of sensation over the right side; secondly, that the patient, although a left-handed man, appeared to be left-brained as regards speech, contrary to the usual rule. No lesion was detected in the neighbourhood of the speech convolutions on the right side.

Clifton.

A CASE OF

LABOUR FOLLOWING CLOSELY AFTER CONGESTION OF THE LUNGS, DYSPNŒA, AND DROPSY, THE RESULT OF ADVANCED HEART DISEASE.

BY R. C. MILLER, M.B., C.M.

WHILE acting for a few days in the place of my friend, Dr. Maclean of Peebles, the following case came under my observation, the particulars of which I think may be of interest, partly from the comparative rarity of such cases, and partly from the various interesting questions connected with them.

On Thursday, April 11th, I was called in to see the patient, Annie D——, aged twenty-five, unmarried, and a millworker. She was suffering from severe cough, accompanied by pain and dyspnœa. Auscultation over the region of the heart revealed an extremely loud and well-marked mitral regurgitant murmur, accompanied, as I believe, also with some mitral stenosis. The lower extremities were œdematous, the pulse somewhat feeble and rapid, and some little œdema at the base of the right lung was present. In addition to these symptoms—and it is this which gives the case its peculiar interest—the patient was pregnant, and expecting her confinement soon. I may say here that her condition was not unknown to me at the time of this my first visit, as my friend before leaving had mentioned the case to me as being a serious one. However, the aggravation of the symptoms, and in particular the distressing dyspnœa, rendered an immediate visit necessary, and examination amply confirmed the serious state of matters of which I had been informed. The dyspnœa and cough were giving her most trouble when I first saw her, and I ordered her a mixture of tincture of digitalis, spirit of chloroform, and nitrous ether, besides putting her on brandy, beef-tea, &c. On the following day her con-

dition was unchanged, the dyspnœa and cough being still troublesome. Towards night she was evidently worse, while some congestion and œdema were present at the bases of both lungs. Next day (Saturday the 13th) she was evidently sinking—pulse becoming weaker, and the congestion extending over the lungs, while the other symptoms were in no way lessened in severity. In the afternoon I deemed a consultation necessary in view of the circumstances of the case, and Dr. Gunn was kind enough to see the patient with me. Examination showed the state of matters to be as above described, but the symptoms of heart failure were more pronounced than they were on my previous visit; the congestion and œdema were now general over both lungs, anteriorly and posteriorly, the pulse 130 and very weak, and cyanosis was now a prominent symptom. At this time I may add, too, that examination of the abdomen failed to detect the fœtal heart-sound. The woman's condition, indeed, was such as to apparently exclude all hopes of recovery, and Dr. Gunn and I were of opinion that she would not live over the night. Meantime we increased the quantity of brandy administered, prescribed a mixture of strophanthus, ether, and tincture of perchloride of iron, and gave orders for such means as we deemed necessary to relieve the general symptoms. About 11 P.M. I saw her again. She was evidently sinking fast, and I felt in no way disposed to take a more favourable view of the case than I had previously. On calling next morning, to my surprise, I found the patient not only still alive, but distinctly better. The congestion was still marked, though somewhat diminished, while the cough and dyspnœa were decidedly better, the pulse slower and stronger, and, generally speaking, her condition was a marked contrast to that of the previous evening. The treatment as above was rigorously followed, and essence of beef was ordered to be taken at regular intervals. At night I found the patient still improving and her general condition satisfactory. She had passed a large quantity of urine during the day, and the lungs were becoming gradually clearer. During these two days of acute suffering there were no signs of the labour commencing; much to my satisfaction, indeed, as it is readily seen that the labour, complicated with the serious condition already described, would have gravely diminished her chance of recovery. The patient herself, as I have already said, did not expect her confinement for some little time. Early on the morning of the 15th—that is to say, little more than twenty hours from the time when her condition seemed hopeless—I was summoned, and found the labour had fairly commenced, and the os sufficiently dilated to allow of my making the diagnosis of the presentation. Her general health was fairly good, as far as was to be expected after her recent attack; the labour was progressing satisfactorily and I decided not to hinder the course of nature in any way. There was nothing abnormal in the course of the labour, which went on steadily during the day and with fair speed, considering the patient was a primipara. Stimulants, with beef essence, were administered repeatedly with the object of maintaining her strength. After a slightly protracted third stage (the presentation I should have said was cranial) the patient was delivered of a stillborn child, of apparently average size, and without any appearance to show that it had been dead for any length of time. The patient did well throughout the night and the following day, and as she gained strength the chest symptoms continued to improve. After this I was obliged to leave the observation of the patient's further progress to my friend, but from him I have since heard (fully nine days after the labour) that she is doing well, the congestion having quite disappeared, and with it the dyspnœa and pain.

Remarks.—In this case I am inclined to think that the dyspnœa and cough, that were so severe throughout the attack, may have had something to do with the bringing on of the labour. Dyspnœa is admitted generally to be a cause of abortion, and, as we know, Dr. Brown-Séquard demonstrated that the presence of an excess of venous blood in the system stimulates the uterus to contraction. We can readily imagine that in the above case the dyspnœa, with cyanosis &c., resulting in the presence of a large quantity of venous blood in the uterine sinuses, would excite the uterine fibres and thus bring on the labour. Another point was suggested to me from the marked improvement in the woman's condition that followed the night when her state seemed hopeless. We know that in the last days of pregnancy the uterus falls slightly downwards and forwards. On this point Leishman, when speaking of the position of the womb in the abdomen, says:—"About the thirty-sixth or thirty-seventh week it reaches the level of the xiphoid cartilage; but between this time and the end of pregnancy it falls downwards and forwards preparatory to the phenomena of parturition." If we could grant that this falling downwards took place in the above case at the time when the heart was evidently failing, then it is easy to account for the improvement. This prolapse of the uterus would ease the upward strain through the diaphragm on the already enfeebled heart and lungs, and would account perfectly for the partial disappearance of the serious dyspnœa. In a certain class of cases when pregnancy is associated with advanced disease of the heart the question of inducing premature labour may have to be considered. It is manifest, however, that the induction of labour in the case described was not at all admissible as a method of treatment, during the course of such an acute attack, although one can conceive of many cases (such as, for instance, where the heart disease is complicated with serious debility &c.) where the induction of premature labour would not only be of advantage, but also highly necessary. In this case the *vis medicatrix naturæ* proved more powerful than I had expected.

Largs, Ayrshire, N.B.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

PROPOSED SURGICAL TREATMENT OF OPAQUE VITREOUS.

BY VERNON FORD, L.K.Q.C.P.I. & M.R.C.S.,
OPHTHALMIC SURGEON, GORDON BOYS' HOME; SURGEON, PORTSMOUTH AND SOUTH HANTS EYE AND EAR INFIRMARY.

AMONG the most unsatisfactory cases as regards treatment and prognosis that seek advice at our various eye hospitals those in which impaired or lost vision is due to the opacities of the vitreous form a considerable number. Unless such can be traced to specific disease, treatment is practically useless. The text-books do not even refer to the treatment of this serious condition, and I have never known a case which was improved by ordinary medical means. The causes of opaque vitreous, apart from the specific ones, which often do well under treatment are principally inflammatory conditions of the choroid, retina, and ciliary body, retinal hæmorrhages, changes occurring in progressive myopia, chronic and subacute glaucoma. In cachectic or strumous states, where the general health is much impaired, I have noticed a haziness of the vitreous; but frequently this condition occurs without any apparent cause. To sum up, this morbid state of the vitreous is one of the most unsatisfactory as regards treatment and prognosis in ophthalmology. The form of procedure I now adopt, when it is evident that the turbid condition of the vitreous is the principal obstacle to vision, is the removal of the opaque fluid by suction. The resecreted vitreous being naturally clear, the plan I adopt is as follows:—Taking a hypodermic syringe with a large bore, I snip up a small piece of conjunctiva above or below the external rectus, the globe being held firmly, and rotated inwards with strong fixation forceps, either by the operator or an assistant. I then insert the needle at the point indicated, and draw off from ten to eighteen minims of vitreous, the amount depending upon its consistence and upon the tension and general condition of the globe. The number of operations necessary in each case will, of course, depend on the amount of fluid removed, the condition of the patient's health, and the amount of benefit following each tapping. I have now operated several times in cases of opaque vitreous with such good results as to warrant me in recommending its trial to others engaged in ophthalmic work. I hope shortly to tabulate these cases, some of which are under observation, but as an example I append a few notes of my last case.

Mrs. C——, of Cowes, Isle of Wight, aged forty-four, other-

wise in perfect health, consulted me at the infirmary about her right eye. On examination I found that she could only perceive light and shadow with the eye; no part of the fundus could be seen. After four operations at intervals of two or three days, during which no bad symptoms, inflammatory or otherwise, occurred, the vision of the right eye was equal to $\frac{5}{60}$, and she can see her way about well. Ophthalmoscopic examination revealed a very ragged fundus, atrophic patches, and general choroidal disease. The risks attending this operation are, as far as I have seen, very slight; but it must not be lost sight of that the punctured wound of the sclerotic cannot be inflicted with too clean an instrument, also that the withdrawal of too much vitreous might be followed by a detachment of the retina and collapse of the globe. It would be hardly possible for anyone with average skill to injure the lens or other delicate structures of the eye. No doubt further experience is required before ranking this amongst firmly established operative procedures; but I trust that these few notes may possibly induce others to adopt a form of treatment which occasionally gives brilliant results, and is practically free from risk.

Southsea.

A FATAL CASE OF COMPLETE INVERSION OF THE UTERUS DURING LABOUR.

By T. BELL GRAHAM, M.B.

ON Nov. 17th, 1889, I was sent for to remove an afterbirth, a midwife being in attendance. When I arrived I found the child had been born an hour, that the labour had been quick, the birth taking place in a quarter of an hour from the commencement of the pains. The mother, a multipara (fourth confinement), was in a state of collapse; pulse at the wrist scarcely perceptible; the uterus inverted and projecting a considerable distance from the vagina, with the placenta firmly adherent to the centre of the fundus. There was no bleeding or oozing from the surface of the inverted womb, which was quite dry, nor was there much blood lost at any time during the labour. On vaginal examination the cervix was felt to be involved and the inversion complete. After giving brandy I quickly removed the placenta, and, interposing a soft cloth between the inverted uterus and my doubled hand, proceeded to reduce the condition. While manipulating the patient became very restless, and threw herself about in the bed. The pulse had now become imperceptible, breathing much embarrassed, and she suddenly expired. Death took place, with the inversion partially reduced, in a quarter of an hour from my arrival and an hour from the occurrence of the inversion.

Remarks.—The absence of the uterus in the hypogastrium and the protrusion of the womb from the vagina render the diagnosis of complete inversion very simple. The conditions which seem to have favoured inversion in this case were: 1. A precipitate labour. 2. A lax condition of the uterine ligaments with a roomy pelvis. 3. The placenta being firmly adherent to the centre of the fundus, with traction on the umbilical cord by the midwife, while the patient was directed to bear down as strongly as possible in order to expel the placenta. The rare occurrence of complete inversion during labour is sufficient excuse for detailing this case. According to Spiegelberg, only one such case was recorded out of 190,000 deliveries in the Dublin Rotunda.

Frizinghall, Bradford.

CASE OF COMPLETE INVERSION OF THE UTERUS DURING LABOUR.

By E. BURDETT POOLEY, L.R.C.P.E., L.R.C.S.I.

ON Friday evening, Jan. 10th, I received a message from a midwife to attend Mrs. B——, the message being that "the afterbirth was very large and hard, and would not come away." Upon my arrival I found the patient lying on her side on the bed, and, Yorkshire fashion, in her clothes; she was in a state bordering upon collapse. I was told that the child had been born about an hour, and that the afterbirth had only partly come away. I found a firm mass, about the size of a large cocoanut, protruding from the vulva; there was complete absence of any tumour above the pubes, and upon making a vaginal examination I felt the ring of the os uteri, but could not pass my finger beyond it. The uterus was completely turned inside out, the placenta being situated at the upper end of the fundus, and drawn out into a shallow cone, the point of which corresponded to the attachment of the funis. The midwife who had conducted the case stated that having waited twenty-five minutes for the afterbirth she had made traction upon the cord, when the whole mass, which she took for a large and diseased placenta, came down into the position in which I found it, and that then she had seized it in her hands, and tried to drag it away, but that she could not do so. Having peeled off the placenta, which was adherent throughout, I gently squeezed the uterus and proceeded to reduce it as a hernia, the portion nearest the os first; having returned it within the vagina, I placed my hand against the fundus and made steady pressure until I felt the organ turn upon itself and contract firmly; then, having put a binder upon the patient, I administered brandy, placed a hot bottle to her feet and, as soon as she was warm, left her. Next day (Jan. 11th) the temperature was 100·8°, and the pulse 129 per minute; but since then the condition of the patient has been as satisfactory as after the most natural labour. In this case the structure of the uterus felt solid; contraction, after reposition, was firm, and there was no tearing of the os or hæmorrhage. The only assignable cause of the accident appeared to me to be the traction upon the funis in conjunction with a firmly adherent placenta.

Bank House, Bradford.

A CASE OF DOUBLE ACUTE RANULA.

By EDGAR DU CANE, B.A., L.S.A. LOND.

ON Sunday, Feb. 9th, I was called to attend a man who "had something suddenly formed in his mouth which was nearly suffocating him." When I arrived, I found the mouth occupied by two large oval swellings of a pale-pinkish colour, with translucent walls; the tongue was displaced backwards over the glottis, occasioning severe dyspnœa and complete inability to swallow. On the right side the swelling also presented below the angle of the jaw. The patient had just begun dinner, having previously been in excellent health, when his mouth suddenly filled up with the tumour below the tongue, and, rapidly increasing, pushed the tongue backwards, so that only the under surface of the tip was visible on examination. There was nothing in the diet to account for the symptoms, and I could discover no salivary calculi or stenosis of Wharton's duct. I made an incision two centimetres long in the line of the duct along the floor of the mouth, and thus gave vent to the pent-up secretion, which resembled saliva in every particular, and measured about one ounce and a half. The swelling below the jaw immediately disappeared, and I passed a finger through the incision and thoroughly examined the cavity for other cysts, calculi, &c., but without any result. Immediate relief was obtained, and the patient could breathe easily, speak distinctly, and swallow with comfort. Mr. F. F. Jones of New Swindon saw the case for me subsequently, and reports that it is progressing favourably, with no return of the swelling and no difficulty in deglutition.

Perham-road, W.

HOSPITAL SATURDAY FUND.—The first meeting of the Hospital Saturday Fund as a body enrolled under the Companies Acts as an association not for profit was held at the Offices of the Fund, Mitre-court, Fleet-street, on Saturday, Feb. 22nd. Mr. H. N. Hamilton Hoare presided in the absence of Sir James Whitehead. On the motion of Mr. Macgregor a number of gentlemen were invited to act as delegates, among them being Mr. George Howell, M.P., and Mr. George Shipton, of the London Trades Council. On the motion of Mr. Dickinson it was resolved to reappoint the paid officers, and ask them to continue their services. The Lord Mayor (Sir H. A. Isaacs) was re-elected president, Sir James Whitehead was re-elected chairman, and Messrs. Acland, Brimmer, Gillespie, and Macgregor were appointed as honorary secretaries of the Fund. The date of Hospital Saturday for the present year was fixed for July 12th.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procemium.

UNIVERSITY COLLEGE HOSPITAL.

THREE CASES OF UNUNITED FRACTURE SUCCESSFULLY TREATED BY OPERATION; REMARKS.

(Under the care of Mr. CHRISTOPHER HEATH.)

IT is not possible in many instances of ununited fracture to say what is the cause of the non-union, but want of proper apposition of the fragments and incomplete fixation of them are not infrequently found. In these cases Mr. Heath considers that there was probably some fault in the early treatment, and apparently does not agree with Tillaux,[1] who looks upon non-union as ordinarily due to interposed muscle, destruction of the fibrous band being the important part of the process. In the cases where the non-union involved bones of the forearm the method first adopted by White[2] of Manchester in 1760 was employed, and the wounds treated as after compound fracture at the site of operation, the wire being removed at a later date. In the tibia there was no separation of the fragments, and it was possible to obtain an equally good result with less disturbance of parts. It will be noted that Gowan's osteotome was used in the first operation, and there is no doubt that the introduction of this instrument has done much to facilitate the section of the bones in some cases of ununited fracture, a part of the operation which was formerly somewhat difficult and prolonged. For the following report we are indebted to Mr. Raymond Johnson, surgical registrar.

CASE 1. *Ununited fracture of radius and ulna.*—E. L. B——, a schoolmaster, aged twenty-five years, was thrown from a dogcart and sustained a fracture of both bones of the right forearm in October, 1887. The limb was fixed on a single anterior splint for three weeks, and then in starch bandages for another month. The arm was soon afterwards strong enough to allow the patient to play cricket, but gradually it became bent at the seat of the fractures. When admitted on Dec. 27th, 1888, there was well-marked angular deformity of the right forearm outwards and backwards; the ulna was shortened by two inches. The two parts of the ununited ulna met at a considerable angle on the dorsal surface of the middle of the forearm, whilst the rounded upper end of the lower fragment of the radius lay outside and in front of the upper fragment. There was almost complete loss of power of pronation and supination. On the day after admission the limb was rendered bloodless with an Esmarch's bandage, and each fracture was exposed by a short dorsal incision. The end of each fragment was cleaned with a periosteum elevator, and about one-third of an inch removed obliquely from each with a Gowan's osteotome. In the case of the radius the line of the fracture was not seen until a mass of new bone on the lower fragment had been removed with bone forceps. In each bone the extremities were smooth and rounded, and united by a false capsule of dense fibrous tissue. The ends were drilled, and each fracture united with stout silver wire. The wounds were sutured with silk, drained with a small tube, and dressed with iodoform wool. Anterior and posterior wooden splints were applied. On the second day the tubes were removed; on the seventh day both wounds were open and supurating freely. On the seventeenth day the splints were removed, and boric fomentations applied until the twenty-seventh, after which alembroth gauze was used and the splints reapplied. He was discharged on Feb. 19th, 1889. Subsequently a small sequestrum came away from each wound, and, in addition, the wire and the broken point of the drill from the ulnar wound. The splints were finally removed on March 11th, and on May 3rd both wounds were soundly healed, and each bone firmly united; pronation and supination were good. The patient was seen at Christmas, 1889, when the arm was quite satisfactory.

CASE 2. *Ununited fracture of radius.*—L. P——, a domestic servant, aged twenty-five years, was thrown from a tricycle and broke both bones of the left forearm on June 17th, 1889. The fracture was treated with anterior and posterior wooden splints for a month, two short ones being subsequently applied for several weeks on account of pain in the limb. When admitted to University College Hospital on Sept. 19th, 1889, the ulna was firmly united with considerable angular deformity inwards; the radius remained ununited, the smooth lower end of the upper fragment lying on the dorsal surface of the lower fragment. In each bone the fracture was at about the middle of its length. The hand was pronated, and could not be supinated beyond the midway position. On Sept. 25th the fracture was exposed by a short dorsal incision, and the smooth end of each fragment sawn off obliquely. The ends were then drilled and united with stout silver wire. On removing the Esmarch's bandage very little bleeding occurred. The wound was sutured, drained, and dressed with iodoform wool, a wooden anterior splint being applied. The temperature remained normal, with the exception of a rise to 100·6° on the first day and 101° on the eleventh. The wound healed by granulation. The patient was discharged on Nov. 11th, the elbow and wrist having been previously moved under gas. The splint had been discontinued and the fracture was firmly united. Some weeks later the wire presented under the skin and was removed by the medical man.

CASE 3. *Ununited fracture of tibia.*—E. N——, a baker, aged twenty-one years, was admitted into University College Hospital on Oct. 8th, 1889, complaining of pain and weakness in the lower part of the left leg. Two years before admission he had fallen a height of twenty-two feet; he was stunned and confined to his bed for three days. The left shin was grazed, but after leaving his bed he walked without difficulty. In July, 1888, he slipped from the step of a cart and struck his left shin; the leg was painful and slightly swollen for a short time, but he was able to continue at his work. The leg, however, became gradually weaker and more and more curved, so that since May, 1889, he had left his work. On admission there was slight swelling and distinct inward curvature of the lower third of the left leg; the tibia and fibula both appeared to be slightly thickened, but each bone seemed to be quite firm; there was tenderness over the fibula at a point three inches and a half above the malleolus. The tibia was three-quarters of an inch shorter than its fellow. On October 16th an incision three inches and a half in length was made on to the front of the fibula at the junction of the middle and lower thirds of the leg; the bone appeared normal. By separating the muscles the tibia was exposed and the line of a transverse fracture seen at the upper end of the lower third. A tenotome was passed into the fracture, which was united only by a thin layer of fibrous tissue, and was distinctly movable. The surfaces of the fragments were freshened by driving a chisel between them. The wound was sutured, drained, and dressed with salicylic wool; an Arnold's back splint was applied on the following day. The wound healed by first intention. A starch bandage was applied on Nov. 9th and the patient discharged on the 16th. The bandage was reapplied on Dec. 5th, and on Jan. 13th, 1890, the patient was quite free from pain, but the leg presented, as before, considerable inward curvature in the lower third.

In lecturing upon these cases of ununited fracture, Mr. Heath called attention to the probability that in both examples of fracture of the forearm some error had occurred in the primary treatment, for otherwise it was difficult to account for the occurrence of false joint in two healthy young adults. He spoke of the importance of setting the fractures by bringing the bones of the forearm parallel to one another, as laid down in his Clinical Lecture on "Fractures of the Upper Extremity,"[3] and combated the prevalent notion that muscular tissue is apt to find its way between the fragments. Stress was laid upon the importance of an oblique section of the bones so as to gain as large a surface of union as possible, particularly in the case of the ulna, the transverse section of the shaft of which is very small. The case of ununited fracture of the tibia was remarkable for the overgrowth of the fibula and consequent bending

[1] Revue de Chirurgie, April, 1888. [2] Cases in Surgery, 1870.

[3] THE LANCET, Jan. 12th, 1889.

of the leg, due to the fracture interfering with the development of the tibia. So little inconvenience did the ununited fracture of the tibia give the patient, that it was only when it was exposed by operation that the defective union was recognised. The treatment adopted seemed to have been successful in causing union, for the leg had become strong and painless, although still deformed.

MANCHESTER ROYAL INFIRMARY.

PERFORATION OF THE VERMIFORM APPENDIX; SUPPURATIVE PERITONITIS; DEATH; NECROPSY.

(Under the care of Dr. GRAHAM STEELL.)

THIS case is a good example of secondary peritonitis due to perforation of the appendix vermiformis, and presents the usual absence of symptoms before the sudden onset of violent abdominal pain. The great importance of these cases, the difficulty in diagnosis which they present, especially in the female after puberty, and the only too frequent termination in death, make it advisable to publish fully recorded cases. Our knowledge of the subject has increased during recent years, and is increasing, but is by no means complete, and there are few cases in medical practice that cause the conscientious physician more anxiety. It is only after early operative treatment that we can expect recovery in the majority, but as in this instance the patient usually applies when the general condition has reduced the chance of success to a minimum. We have published[1] a paper on the Special Diagnosis in Acute Perforative Peritonitis, to which we would refer our readers. For the notes of the following case we are indebted to Mr. T. N. Kelynack, house surgeon.

William C——, a schoolboy aged twelve, was admitted to Yates ward on the afternoon of Wednesday, Jan. 8th, with symptoms of acute peritonitis. On the previous Saturday night, Jan. 4th, the patient, who had always enjoyed good health, went to bed as usual, apparently quite well. About 11 o'clock he got up and partook of a hearty supper of sausages and pork, together with some boiled peas. In about half an hour he was suddenly seized with violent abdominal pain, which, according to his mother's account, did not appear to have been definitely localised in any particular region. Severe and persistent vomiting quickly followed. On Sunday morning half an ounce of castor oil was taken, and the bowels were subsequently relieved, but no blood was passed. Vomiting with constant abdominal pain continued. On Jan. 7th Dr. Blore visited the patient, and found him suffering from generalised abdominal pain, which had so increased by the following day that he was at once advised to come into hospital. On admission on Jan. 8th he presented the usual symptoms of acute peritonitis. The face wore a pinched, haggard, anxious expression. He lay on his back, with legs drawn up towards the body; the abdomen was very tense, due to the marked rigidity of the abdominal walls. Generalised pain was complained of, much increased on pressure. Periodical exacerbations occurred, causing such distress as to produce sharp cries of anguish. Vomiting persisted, almost everything being quickly ejected. There was also frequent desire to defecate, but no motion was passed. Respiration was shallow, but not increased in rate, and almost entirely of superior costal type. There appeared to be instinctive opposition to the slightest diaphragmatic descent. The pulse was rapid, weak, and thready. Mental, as well as physical, prostration was very pronounced, there being great restlessness and at times delirium. Scarcely any urine was passed. The case was diagnosed as one of perforative peritonitis, due most probably to ulceration of the vermiform appendix. Surgical interference was not considered advisable and a very bad prognosis was given, it being thought improbable that the case would last many days. The patient was at once placed in a position affording greatest relaxation of the abdomen. Ice was given from time to time, and milk in small quantities to relieve the great thirst continually experienced. Two pills of calomel and opium were also given, and on the evening of the day of admission five minims of Battley's liquor opii sedativus were taken. A restless night was passed. The temperature, which on admission was 101·6°, fell to 99·2°. The following morning, Jan 9th, the temperature was still at 99·2°, and at 10 A.M. seven minims of Battley's solution were given. As, however, vomiting frequently occurred, further medication was carried on by hypodermic injections of morphia, repeated sufficiently often to keep him well under the influence of the drug. At night the temperature was 99·4°. By the morning of Jan. 10th the temperature had fallen to 97·8°, and the patient appeared much more exhausted. No food could be retained. Complete constipation continued. Little or no urine was passed. Prostration became much more marked during the day, and the patient gradually sank, dying somewhat suddenly in the evening.

A post-mortem examination was made on Jan. 11th by Dr. Wild, and extracts from his report state that the "peritoneum contained pus. The omentum, coils of intestine, and viscera were united together by thick layers of purulent lymph. Stomach normal. Intestines covered with lymph, normal in character. Vermiform appendix adherent to right iliac fossa, and presented a lateral perforation, one-eighth of an inch in diameter, and half an inch from its extremity, surrounded by recent adherent lymph. The tip of the appendix contained a nodule, the size and shape of a pea, consisting of hard brown fæces."

[1] Dr. Hector Mackenzie, vol. ii. 1888, p. 1060.

THE CARLOW INFIRMARY.

SURGICAL CASES.

(Under the care of Mr. O'CALLAGHAN.)

MULTIPLE amputations for injury are sometimes required, and cases are on record where parts of all the limbs have been successfully removed. Ashhurst,[1] who amputated the left leg, right thigh, and right forearm, advises in cases of serious injury the administration of carbonate of ammonia in five-grain doses or less, to be given after operation as a stimulant, and also for the prevention of thrombosis in the heart or vessels. He also points out the necessity of keeping up the bodily heat during the operation.

It is seldom that a surgeon is called upon to treat senile gangrene of the arm, and we publish the account of this case, as it well illustrates the disease in that situation. The description resembles closely that of a case of ordinary senile gangrene of the foot and leg, which has followed slight injury to one of the toes. Mr. Jonathan Hutchinson read the notes of a case of gangrene of the arm[2] in his series illustrating the advantages of high amputation in senile gangrene. The patient, a man aged sixty-five, recovered after amputation just below the shoulder-joint; his brachial artery was a solid thick cord. We published in the Mirror of Hospital Practice in 1856[3] a case which had been under the care of Mr. H. Thompson, who amputated below the elbow in a man aged sixty. This patient had eighteen months previously undergone amputation of the ankle for gangrene of the foot. "The complexion was of a venous hue, the heart's action irregular and intermitting, and there was a systolic murmur at the base." The possibility of performing amputations with perfect asepsis has much modified our views as to the probability of successful surgical treatment of disease at every age of life. For the notes of both cases we are indebted to Mr. F. McCord.

CASE 1. *Amputation of both legs below the knees in a patient with mitral regurgitation; recovery.*—J. W——, aged twenty-one, single, was admitted on the morning of Nov. 19th, 1889, at 2 A.M., having been run over by a goods train two hours previously. The waggon wheels had passed over both ankle-joints, and the metatarsal bones were squeezed through the boots. There was an incised wound of the forehead and a compound fracture of the lower jaw. He was found on the line one hour after the accident in a state of collapse, which was intense on his admission. He was given an enema of four ounces of whisky with two ounces of beef-tea. Dr. W. O'Meara administering ether, Mr. O'Callaghan at once amputated both legs. The patient was in bed forty-five minutes from the commencement of the operations, and eight hours after, having completely rallied from the collapse, he remarked that he (patient) would not get better, as he had just been discharged from the army for heart disease. He was found

[1] Medical and Surgical Reporter, vol. i. 1888.
[2] Medico-Chirurgical Soc. Trans., 1884.
[3] Vol. ii., p. 882.

to be suffering from mitral disease. He made an uninterrupted recovery. The stumps were dressed with dry alembroth wool and gauze, and on being opened on the seventh day (for the first time) the right had healed by first intention; the left completely healed by the fifth week.

CASE 2. *Amputation of arm for senile gangrene; recovery.*—M. D——, age seventy-four, married, was admitted on March 4th, 1889, suffering from gangrene of the middle finger of the left hand, which he thought was caused by a burn while lighting his pipe. There was very little pain, the first phalanx was quite bare, the discharge slight, but most offensive. A bogginess extended up to the metacarpal bone. In a few weeks it gradually invaded the whole hand. Up to this time treatment consisted locally of wool dressing, with iron and stimulants internally; and despite all forms of deodorisation, the fetor became unbearable, and the patient was sinking. At his earnest request, on April 4th, as a last resource, Mr. O'Callaghan decided to amputate, and preparatory to this the arm was enveloped the night previous in lint soaked in a solution of perchloride of mercury (1 in 2000). Ether was administered by Dr. O'Meara, which agreed well with the old man. The arm was removed below, but quite close to, the elbow, by dissecting two square skin flaps. The stump was stimulated by scrubbing it well with a brush dipped in perchloride solution (1 in 3000), the parts being adjusted minutely with fine catgut ligatures; it was then dressed with alembroth gauze and wool, putting considerable pressure on the face of the stump with the bandage. For the first time since his illness the temperature rose to 101°, reaction setting in. The pulse was hardly perceptible for several days. He was given good old Irish whisky *ad libitum* with milk, to which he attributes his recovery. The dressing was removed for the first time on the eighth day; when, with the exception of a few drops of a suspicious-looking dark fluid which oozed from one corner, the wound had healed completely. The stump was washed with perchloride solution and dressed as before. The patient, who was exhibited at the Surgical Section of the Royal Academy of Medicine, was discharged, the stump quite healed, on April 27th.

Remarks by Mr. O'CALLAGHAN.—I thought these cases might be worthy of recording, as they show that, notwithstanding all theoretical assumption to the contrary, prompt surgical interference will sometimes save life. In Case 1 the man was admitted in a state of profound shock and collapse from loss of blood, complicated with what I was not aware of at the time—mitral disease. To wait for his rallying from the same, which most if not all authorities and text-books teach, would mean to have watched him die slowly and in fearful agony. This with many other cases of amputation after accidents has proved to me that administering ether lessens or lulls the primary shock; and when the crushed and mangled parts are removed the secondary shock is not as great, and easier to rally from with a clean cut surface. By the experience gained in Case 2, I regret the fact that I have allowed cases of senile gangrene to die a miserable death, without giving them the chance of recovery by amputation, because it was, and is still, the rule, laid down by text-books and teaching. For the future such will not occur in my practice. Surely if euthanasia is imminent, it is far better that it should be brought about by the removal of a putrid mass rather than to allow patients to linger on, a living death, even if we were only able to save 50 per cent.

THE NORTH LONDON NURSING ASSOCIATION FOR THE POOR.—The annual meeting, under the chairmanship of Mr. Lawson, M.P., showed that this Association, the second largest of the sort in London, continues to thrive and to do excellent work. Much credit is due to the committee, and especially to the treasurer, Isaac Butler, Esq. The number of cases nursed in the year was 1435. The income was £1128 18*s.* 11*d.*, leaving a balance of £15 with the treasurer.

THE ALVARENGA PRIZE.—We learn that the College of Physicians of Philadelphia will award the Alvarenga Prize, consisting of one year's income of the bequest, to the author of the best memorial or unpublished work on any branch of medicine, the College reserving to itself the right to reject all essays not considered worthy of the prize, and that they will be received by the secretary until June 1st, 1890.

Medical Societies.

ROYAL MEDICAL & CHIRURGICAL SOCIETY.

Symptomatology of Total Transverse Lesions of the Spinal Cord.

AN ordinary meeting of this Society was held on Feb. 25th, 1890, the President, Sir Edward Sieveking, in the chair.

Dr. CHARLTON BASTIAN communicated a paper on the Symptomatology of Total Transverse Lesions of the Spinal Cord, with special reference to the condition of the various reflexes. The author pointed out how widespread the notion was amongst physicians that in cases of total transverse lesions of the spinal cord, either in the lower cervical or upper dorsal region, the reflexes dependent upon the lumbar region of the spinal cord, after any shock might have subsided, became exaggerated, whilst more or less of rigidity showed itself in the lower extremities. This opinion he himself entertained till about ten years ago, when two of such cases came under his care and were, over a period of several weeks, very carefully examined. The notion itself had been based upon the observed effect in man of partial loss of brain influence over the cord, together with the results of experiments made upon animals of very much lower organisation by physiologists. He pointed out, however, that it was not a question as to what would happen when brain influence in man was partially cut off from exercising this or that influence upon the spinal cord, but rather what the results would be when the influence of both cerebrum and cerebellum were completely cut off from the lower half of the spinal cord. What would happen with animals much lower in the scale was a totally different question. Having called attention to statements made by himself upon this subject in "Quain's Dictionary of Medicine" in 1882, the author cited some recently published neurological text-books to show that the old opinions as to the exaggeration of the reflexes under the conditions in question were still enunciated. The author, therefore, now published in detail four cases of total transverse lesion in the lower cervical or upper dorsal region of the spinal cord, upon the prolonged examination of which his opinion was originally based that all the so-called tendon reactions and lumbar reflexes were abolished, excepting the reflex actions of the bladder and intestines, which were found to be impaired to an extent that was specified. He subsequently cited twice as many recorded and other cases of fracture dislocation affecting the cervical or upper dorsal regions of the spinal cord in which sensibility as well as motility had been absolutely lost, and in which the reflexes had remained abolished after shock had passed off—the necropsies in these cases having shown that here also the crushing and other lesions were limited, and that the lumbar swelling was undamaged apart from the occurrence of secondary degenerations. The author insisted that the loss of sensibility must be absolute as well as the loss of voluntary power, in order to bring about the abolition of the reflexes. He pointed out that the two principal objections that had been advanced against the acceptance of his views were (1) that the abolition of reflexes was only temporary, and would cease with the disappearance of shock—this being an objection which he considered to be fully met by his own cases of transverse softening, where there was little or no shock and where the reflexes continued absent for week after week. The other objection was (2) that there must in these cases have been lesions in the lumbar swelling of the cord; to which he answered that in three of his cases no such lesions were discovered, and that in all the more numerous cases of injury that he had cited in his paper the lumbar region was reported to have been uninjured and to have a healthy appearance. The author showed that the subject discussed in this paper was of great interest, not only (1) from the point of view of the importance of obtaining a correct symptomatology for total transverse lesions of the spinal cord, but (2) that it had important bearings upon some other points in the diagnosis of disease of the spinal cord, and (3) because it tended to throw great light upon the pathogenesis of rigidities and exaggerated reflexes, and seemed to cast a sidelight upon one of the functions of the cerebellum. The author believed, in short, that the abolition of the reflexes in these cases was due to the simultaneous

cutting off from the lumbar region of the cord of the influence not only of the cerebrum, but also of the cerebellum.

Dr. HUGHLINGS JACKSON valued greatly the partial agreement of Dr. Bastian with some of his views concerning the action of the cerebellum, and he should be glad to hear of any facts which could be brought against those Dr. Bastian had adduced. In some cases where there was a lesion which he believed to be a total transverse one high up above the lumbar enlargement, and there had been exaggeration of knee-jerk with rigidity, he had been obliged to admit that the connexion with the cerebellum was not essential; but now he certainly regretted that admission. He referred to some cases which had a bearing on those related in the paper. In one instance which came into the London Hospital there was a fracture-dislocation in the cervical region; the knee-jerks were absent, there was complete loss of motion and sensation, and the patient lived long enough to exclude the idea of shock. In that case it was suggested that there was a secondary myelitis in the lumbar region; he regretted that no microscopical examination of the cord was made. Another case of similar nature was at present in the hospital. The existence of foot-clonus and exaggerated knee-jerk in some cases of epileptic seizure seemed to him to go much against the opinion Charcot had expressed.

Mr. BOWLBY wished to relate some facts which supported Dr. Bastian's conclusions. Six years ago a case which presented absence of knee-jerks in association with fracture-dislocation in the cervico-dorsal region attracted his notice. He had since observed twenty-two such cases, nineteen of which were fatal, and in fifteen of them careful examinations were made. All presented absent reflexes, and one of the cases lived as long as ten months afterwards, which quite excluded shock. In all the cases where the transverse lesion was complete the deep reflexes were entirely abolished, but in some the superficial reflexes had returned later. Many of the cases, however, died too quickly for this latter point to be determined, two of them dying within a day, and three within three days of the accident. Two of the cases showed exaggerated reflexes, but in neither of these was the lesion a total one. In June, 1889, he saw a boy, aged sixteen, who had received an injury to the neck, followed by complete loss of power in the lower extremities; there was some retention of sensation in the left leg, and some slight power in the left arm. Later he became worse, the breathing being almost entirely diaphragmatic, and many bedsores formed. On the second day he observed that the reflexes were exaggerated. In that instance the cord was not completely severed, and the increase in the gravity of the symptoms was probably due to the occurrence of hæmorrhage. The patient recovered with a little weakness of the left arm. In another somewhat similar case there was loss of power in the lower extremities, together with the development of bedsores. The knee-jerk was exaggerated and ankle-clonus was present. The patient died of broncho-pneumonia, probably septic, six weeks after the reception of the lesion, and the cord was found nowhere completely severed, there being softening in the cervical enlargement. The question was of interest to surgeons from a diagnostic point of view, for if the reflexes were entirely lost a complete transverse lesion could be diagnosed; but if they were exaggerated, then the lesion was as certainly not complete.

Dr. BUZZARD said that, although in cases of myelitis he had observed absence of deep reflexes, he had explained it as due to an extension of the disease to the lumbar enlargement. Dr. Bastian seemed to have quite made out his case that a total transverse lesion above the lumbar enlargement had been associated with abolished reflexes; but if the author would go beyond that, and state that such abolition must necessarily follow such a lesion, he could not at present go so far with him. Turning over his note-books he had alighted upon some cases which were difficult of explanation in the light of Dr. Bastian's paper. In a case of paraplegia from spinal caries which he had reported in the thirteenth volume of the Clinical Society's Transactions, the patient, aged twenty-two, presented an angular curvature with its apex at the sixth dorsal vertebra. The lower extremities were absolutely powerless, and a line drawn round the trunk two inches below the nipples marked off the area below which neither touch nor pin pricks could be felt. The patient had no control over the urine or fæces, the skin reflexes were greatly exaggerated, clonus was readily excited, and the knee-jerk much increased. Sections of the cord when hardened showed that both the grey and white matter were crowded with nuclei, and that very few axis cylinders were seen. In two other cases there was total abolition of motivity and sensation with preservation of the reflexes. The object of Dr. Bastian's paper was to prove that total transverse lesions would destroy the reflexes; but this was a supposition and not a proved fact, and as such the argument could not be used against clear instances of total powerlessness with anæsthesia and preservation of the reflexes such as those he had related.

Dr. BASTIAN replied that the case first quoted by Dr. Buzzard was not one of total transverse lesion as he understood it, but it resembled precisely the case of Charcot's to which he had already referred. There were in reality only two classes of cases from which reliable deductions could be drawn: those where softening existed to diffluence and those where the cord was completely crushed from fracture-dislocation. He was content to wait for evidence from the future rather than to argue from observations of the past. He felt that nature could not be so variable as to allow one case of the same lesion to present exaggeration and another absence of reflexes. He believed that there was not a single recorded instance of total transverse lesion in which deep reflexes and rigidity had been present, but he admitted that the superficial reflexes might remain just as those of the bladder and intestine did.

MEDICAL SOCIETY OF LONDON.

Phthisis and Psoas Abscess.—Talipes Equino-varus.—Ossified Scalenus Medius.—Erb's Paralysis.—Elephantiasis.—Rheumatic Nodes.—Syphilitic Arthritis.—Valvular Cardiac Disease.—Lead Palsy.

A CLINICAL meeting of the Society took place on Feb. 24th, the President, Dr. Theodore Williams, in the chair.

The PRESIDENT exhibited a case of Phthisis and Psoas Abscess, in which the drainage of the latter had been attended with partial arrest of the former disease. The patient, a girl of sixteen, was admitted into the Brompton Hospital in October, 1889, with a well-marked cavity in the upper part of the left lung, and some tuberculisation of the right. In November a globular swelling, about the size of a hen's egg, appeared over the eleventh and twelfth ribs, about two inches from the spine on the left side, which increased and appeared to communicate with some fulness in the left pelvic fossa, fluctuation in the one being conveyed to the other. There was evidence of disease of the lower dorsal vertebra, with slight spinal curvature. The lumbar swelling was incised by Mr. Godlee and a quantity of pus let out, and the wound stitched and dressed antiseptically. At a later date it was reopened and a drainage-tube inserted, through which there still was some discharge. The patient was kept recumbent for two months, and was then fitted with a poroplastic jacket and allowed to sit up. Meantime, in addition to general improvement, with gain of weight, the cough and expectoration had diminished, and the physical signs showed contraction of the cavity and marked tendency to arrest of the tubercular mischief. Dr. Williams drew attention to the relief of the lung afforded by the discharge from the psoas abscess, which he had noted in other cases; but what was most remarkable was that contraction of the cavity took place under the most unfavourable conditions of recumbent posture and difficult expectoration, where retention of secretion and fresh lung infection would have been naturally expected.

Mr. RICHARD DAVY exhibited a girl, aged sixteen, who was admitted into Westminster Hospital on July 24th, 1889, for double congenital equino-varus, and who submitted to osteotomy at the transverse tarsal joints in preference to amputation of the feet. A full description of the operation performed appeared in the *British Medical Journal* for Oct. 29th, 1881, and May, 1883. The portions excised were exhibited. From the right foot came parts of the os calcis and head of the astragalus, four outer metatarsal bones, the whole of the scaphoid, cuboid, and cuneiform bones. From the left foot were taken parts of the internal malleolus, os calcis, astragalus, three cuneiform bones, the bases of the fourth and fifth metatarsal bones and the whole of the scaphoid and cuboid bones. Casts were shown of the feet prior and subsequently to the opera-

tion; the result gave a shortened foot, symmetrical and plantigrade, and the patient was now learning to walk. The comparison was shown between the boots worn prior and subsequent to the operation; her present boots varied in no particular from those of every day wear. The case shown was a duplicate of one which occurred in his practice in 1886, and he showed casts from this illustrating the deformity before the operation and the result attained after the bones had been removed. In that case he took from the left foot a part of the os calcis, the tip of the internal malleolus, parts of three cuneiform bones, the base of the fifth metatarsal and the whole of the scaphoid and cuboid bones. From the right foot he removed part of the os calcis, the astragalus, almost the whole of the scaphoid, part of three cuneiform bones, the bases of the fourth and fifth metatarsal bones, and the whole of the cuboid. The inversion of the sole on walking was in this case found to be considerable after the operation, and therefore on each leg a wedge was cut out from the lower end of the fibula and tibia with a satisfactory result. Mr. Davy considered that these two patients, who came to him walking on all fours (hands and knees) were typical of a class of clients who had hitherto been subjected to amputation. The patients preferred excision of the tarsus and metatarsus to amputation. They could wear ordinary boots, and walk well enough to engage in ordinary occupations. The operation had been performed forty-five times by Mr. Davy, with only one death. The whole of the sole was utilised for purposes of support and progression, and thereby the constant inflammation and ulceration over the cuboid bones were prevented. As time went on improvement followed instead of relapse, and the conservation of the metatarsus and phalanges of the foot was a matter of concern to all patients.

Dr. BEEVOR showed a case which he believed was one of Ossified Scalenus Medius. The diagnosis lay between that condition, a supernumerary rib, and an osteoma springing from the first rib. The patient, a woman aged twenty-three, fell down and hurt her elbow. Twelve months ago she noticed pain in the left side of the neck, and six months later pain in the left arm was complained of. The swelling was continuous with the scalenus medius muscle, and was very tender to pressure.—Dr. STEPHEN MACKENZIE looked upon the case as an instance of supernumerary cervical rib. He had seen two cases himself in which the patients, both women, presented the malformation on the left side only, and he referred to the series collected by Professor Struthers of Aberdeen. In cases such as that the history should be quite disregarded.—Dr. SEYMOUR TAYLOR thought a strong point in favour of cervical rib was the fact that it could be traced back to the spine.—Dr. BEEVOR, in reply, said he was willing to accept the diagnosis of cervical rib.

Dr. SIDNEY PHILLIPS showed a case of Erb's Paralysis in a man aged thirty-one. The patient had been in good health till Jan. 5th, 1890, when, after drinking too much, he fell down some stairs and struck the point of his shoulder; afterwards he found himself unable to use it. On examination the deltoid, supra-spinatus, infra-spinatus, pectoralis major (slightly), triceps, brachialis anticus, and supinator longus were found affected. They reacted only slightly to faradaism, the deltoid not at all. The muscles were recovering slowly under galvanism.

Dr. BEEVOR showed a somewhat similar case. A man aged thirty-seven, on Nov. 21st, was pitched off a cab, and fell on the left shoulder and side of the head, stretching the neck. He gradually lost the use of the arm. At first there was some anæsthesia about the shoulder-joint, and there was at present complete paralysis of the biceps, coraco-brachialis, brachialis anticus, deltoid, supra- and infra-spinatus. There was no reaction to the strong faradaic current, and the muscles gave the reaction of degeneration. Nearly all such cases were due to stretching of the brachial plexus, and corresponded to a lesion of the fifth and sixth cervical nerves before joining the plexus. If in the monkey these nerves were divided, paralysis of the biceps, supinator longus, and deltoid followed. He quoted the case of a woman who went to sleep with her neck resting against the edge of the table, and paresis of these three muscles resulted. The same thing might happen in infantile paralysis, but, as the lesion was situated in the anterior horns, there was no accompanying anæsthesia.—Dr. STEPHEN MACKENZIE asked if contraction of the pupil and diminution of the width of the palpebral fissure were observed in either case.—Dr. SEYMOUR TAYLOR held that the supinator longus could act both as a pronator and a supinator, and said that Duchenne had demonstrated this in the living subject.—Dr. BEEVOR replied that he had not noticed any change in the pupils or the palpebral fissure. There would be no pupillary symptoms unless the second dorsal nerve was also affected. He believed that the supinator longus was not a pronator or a supinator, but a pure flexor. He felt sure that the action of a muscle produced by faradaism was not the same as that produced by the will.

Mr. HERBERT ALLINGHAM brought forward a girl aged seventeen with both legs swollen, hard, and semi-solid, pitting very slightly on pressure, and giving rise to little or no pain. A sister, aged nineteen, had a similar condition of one leg. The enlargement commenced four years ago. He thought the diagnosis lay between elephantiasis and chronic inflammation about the veins.

Dr. SIDNEY PHILLIPS showed a little girl aged nine, who had been the subject of Subacute Rheumatism, and who showed small nodes on the flexor tendons in the palms of the hands. A mitral systolic murmur was present, and there were pains in the joints.

Dr. PHILLIPS also showed a girl of fourteen who came to him seven years ago with Secondary Syphilis, with which disease she seemed to have been inoculated about the mouth. She got well under mercurial treatment, but in September, 1887, a gummatous swelling of the lower third of the right femur formed; this disappeared under treatment, but recently a swelling of the right knee formed without heat, tenderness or pain; there was also a small nodule on the inner side of the joint. He thought it corresponded in all essential characters to a syphilitic joint.—Mr. PYE thought that acknowledged cases of syphilitic arthritis were of a more semi-solid character and not of the nature of hydrops.

Dr. SEYMOUR TAYLOR showed a case of severe Valvular Disease of the Heart occurring in a sempstress aged twenty-six. She presented all the typical signs of aortic obstruction and regurgitation, of mitral regurgitation, and also, he thought, of mitral obstruction. The valve disease probably dated from two attacks of rheumatic fever, the first ten years ago, the second occurring seven years ago. The chief point of interest was that her physical signs outweighed in severity her symptoms. She was still able to go about and follow light occupation, and his contention from watching a number of such cases was that the presence of mitral regurgitation was rather beneficial to her than harmful. He had already shown a series of cases in which double aortic disease alone existed, and compared them side by side with another series in which the aortic lesions coexisted with mitral regurgitation; and in all the evidence showed that those cases with the graver disease had more comfort and less dyspnœa and palpitation than those in whom the aortic lesions alone were present. This he considered to be due to the mitral insufficiently acting as a safety valve to the over-distended ventricle, and in such cases he found hæmoptysis was a relief. Whether, in the case shown, the mitral regurgitation was a result of the aortic disease and its secondary dilatation of the ventricle, or whether it was due to the same cause (acute rheumatism) he could not say; he believed, however, that all the valves were affected by the same illness. But whether contemporary with, or secondary to, the aortic disease, the effect was the same; she had now some degree of comfort even with her advanced aortic disorder. Dyspnœa was an early symptom in mitral disease and a late one in aortic regurgitation. This was supposed to be due to lung congestion being an early condition in the former, and the dyspnœa was pulmonary. But there was another form of dyspnœa which was mainly cardiac, and this, occurring early in the history of a case, was frequently found in aortic disease. Then given mitral regurgitation, or a safety valve overflow, this form of dyspnœa remained in abeyance for some considerable time, or at least until such a period when the general nutrition of the heart muscle was irretrievably impaired.—Dr. STEPHEN MACKENZIE said that it was a matter of clinical experience that in aortic disease the mitral valve gave way later on, but he regarded this as the weakest kind of compensation. It gave, no doubt, immediate relief, but the prognosis was worse after this had happened.

Dr. STEPHEN MACKENZIE then showed an instance of Lead Paralysis which was the antithesis to those cases of Erb's paralysis which had been exhibited earlier in the evening. The patient was a worker in lead, forty-five years of age, who came to London to commence his occupation

twenty-seven years ago. He had had two previous attacks of colic and one of wrist drop. There was paralysis of some of the shoulder muscles, with atrophy of the extensors of the fingers, but not of those of the wrist. The arterial tension was increased, and there was hypertrophy of the left ventricle, with albuminuria and casts. Both eyes showed papillo-retinitis, with hæmorrhages, and there was a blue line on the gums. The patient, who drank spirits, but not beer, had had several attacks of gout. The ocular lesion was either due directly to the lead or to the condition of the kidney, which latter had been caused either by the lead or by gout, or by a mixture of both. There was a well-marked lead cachexia. It was interesting to note that, while all the muscles supplied by the musculo-spiral nerve were affected, the supinators escaped.—Dr. BEEVOR inquired whether anæsthesia were present. The distribution of the palsy in this case favoured the idea that the disease was a central lesion, and not a peripheral neuritis.—Dr. LITTLE dwelt on the necessity of teaching patients the value of drinking sulphuric acid lemonade as a means of preventing the lesions.—Dr. MACKENZIE, in reply, said that there was no anæsthesia. Workpeople would often not take the lemonade when it was supplied to them; perhaps mixing it with grog, as was done with the lime-juice served to sailors, might act as an inducement.

Mr. HURRY FENWICK introduced a patient who had suffered from Relapsing Urethritis for six years. The discharge, which was of gonorrhœal origin, had been repeatedly subdued by various remedies for a few days, but it had always reappeared on the slightest provocation. According to the patient's account, the urethra had become inured to every kind of known treatment both local and constitutional. On examination with electric light the cause of the gleet was detected. An elongated oval granular patch was discovered at two inches and a half from the meatus. There was no stricture. A No. 15 English steel bougie passing easily. The granulations were so prominent and of so brilliant a hue that the diseased patch was shown under electric light to the Society as typical of its kind. It was contended by some authorities that granular urethritis was merely an optical delusion, and the appearance to which that name was given was caused by a deficient illumination. This view has been disproved since the electric urethroscope had come into use. Mr. Fenwick subsequently burnt the patch lightly but painlessly with the actual cautery under control of the light, and asserted that in this case that procedure would probably prove sufficient.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

THURSDAY, JAN. 16TH.

DR. C. N. GWYNNE, PRESIDENT, IN THE CHAIR.

Retinal Hæmorrhage.—Mr. SNELL showed a man, aged fifty-seven, who had been under observation for several months on account of diffused hæmorrhages in the retina of the right eye. Recently, a number of purpuric spots had appeared on the extensor aspects of the forearms, particularly the left. No such spots were discovered elsewhere. The mucous membranes were slightly paler than natural, and the gums were not spongy. The urine was slightly albuminous, and there was hypertrophy of the left ventricle. Mr. Snell remarked on the interesting association of the purpuric spots with hæmorrhages in the retina, and said that, although the patient was undoubtedly the subject of kidney disease, there had never been present in the retina any of the white patches characteristic of albuminuric retinitis, and, moreover, it was confined to the right eye.

Hemiplegia.—Dr. DYSON showed a case of right hemiplegia with descending degeneration of the lateral columns of the cord. The patient was a plumber, and was seized two years ago. He had never been unconscious, but had lost the use of the right arm, right leg, and part of the right side of the face. Some aphasia supervened. His condition when shown before the Society was that of late rigidity of the right arm and spastic contraction in the right leg. The patellar reflex and ankle clonus were immensely exaggerated. There was no history of syphilis. There were a history and symptoms of lead colic. He had been very intemperate for some years prior to his seizure.

Unilateral Ulceration of the Neck.—Mr. ATKIN showed this case. The patient was a woman aged seventy-five, mortem, a tumour about the size of a large orange was with a history of an attack of paralysis some years before. The ulceration was confined to the left side of the neck, to the area supplied by the superficial cervical plexus. It was accompanied by great pain, and was very chronic in its nature, having lasted with but little change for over eighteen months.

Salivary Calculus.—Mr. PYE-SMITH showed a specimen which he had removed from the left Wharton's duct of a lady aged thirty-six, in whom it had caused the usual symptoms of obstruction.

Carcinoma of the Ascending Colon.—Mr. T. ROBINSON showed a specimen from a patient who had died in the Infirmary under the care of Dr. Dyson. The patient, a man aged forty-seven, had complained of pain in the right lumbar region of six months' duration, with constipation, but no melæna. The pain was not increased by food, and there was no vomiting. There was rapid emaciation. The abdominal muscles were tense, and there was some tenderness over a large orange-shaped tumour which was situated about midway between the anterior superior spine of the ilium and the ribs. The patient died of exhaustion. Post found, involving nearly the whole of the ascending colon, from close to the ileo-cæcal valve to the hepatic flexure, where it extended into the liver. The growth involved the whole circumference of the bowel, and was about two inches in thickness, though there was a complete passage through it. There were no secondary deposits or enlarged glands found.

Influenza.—Dr. SIDNEY ROBERTS read a paper upon epidemic influenza, in which, after giving a general survey of the literature on the subject up to the present time, he described the symptoms of the disease as it had occurred recently in his own person. The most marked features in his case were the suddenness of the attack, the fever, the temperature reaching 102·8°, great prostration, pain in the back and head, especially in the eyeballs, vomiting, diarrhœa, and bronchitis. The illness lasted four days, but a relapse occurred on the sixth day, marked by rise of temperature and bronchitis. Dr. Roberts thought the disease an infective one, due probably to a specific microbe.

SOCIETY OF MEDICAL SUPERINTENDENTS OF METROPOLITAN POOR-LAW INFIRMARIES.

AT the last ordinary meeting of this Society, held at Mile-end Infirmary, the following, among other cases, were shown by the medical superintendent, Dr. A. H. Robinson.

Alternate Hemiplegia.—A woman aged twenty-six, single, and of intemperate habits, contracted syphilis six years ago. The body and limbs are still covered with coppery, squamous eruption. She also had acute rheumatism three years ago. Some three months since she awoke in bed and found she had lost the use of her left side, and noticed that the right eyelid drooped. There is now paralysis of all parts of the third nerve on the right side, and considerable loss of power in the left arm and leg.

Alcoholic Paralysis.—Case 1: A woman aged thirty-four, well nourished, of grossly intemperate habits. She is one of a family of seventeen children, and has borne three children, all of whom died in infancy. She has had no miscarriage. On admission she was quite unable to stand, and the heart sounds were extremely feeble. She continues in that condition, and also complains of excruciating pains in the neighbourhood of the anterior tibial nerves, also in the wrist-joints and knuckles. She screams when the feet are pressed upon, and at times declares the toes are broken off. In conversation she is rational, but her memory is affected, and she is the subject of hallucinations, as a rule of an unpleasant kind. There is great enlargement of the liver, the surface of which is markedly roughened; but there is neither jaundice nor ascites. Urine is normal. Knee-jerks are quite absent.—Case 2: A woman aged forty-six, twice married, but has had no family. Had complained for two years before admission of weakness in the legs, so much so that at times she fell in the street. There was a marked history of intemperance. On admission she was unable to stand, and there was ataxy of the upper extremities also, and loss of deep reflexes. The cheeks, ears, hands, and feet were persistently purple. The woman had no knowledge of her whereabouts or of her antecedents. All this has now passed off, and she has so far recovered the use of her limbs

as to be able to walk without any difficulty. All mental symptoms have also disappeared.

Charcot's Joint Disease.—A woman, forty-eight years of age, had one child twenty-six years ago, living and healthy, but miscarried at three months in her second pregnancy, and has not been pregnant since. Her husband was a seaman. Nine years ago she commenced to suffer from so-called bilious attacks, and from lightning pains in the lower limbs. From that time onwards she gradually lost the use of her limbs, her hair came out, and the right sixth nerve became affected. She is now bedridden, both knee- and ankle-joints being affected, while the right shoulder-joint is disorganised, the head of the humerus being broken off from the shaft and lying loosely in the capsule.

Syphilitic Ostitis.—A boy aged fourteen, showing many of the marks of congenital syphilis, presents also considerable and symmetrical enlargement of both tibiæ. The enlargement began and progressed insidiously, being apparently unaccompanied with pain. The bones are markedly curved forwards in sabre fashion, and the malleoli are greatly enlarged, giving the ankles a clubbed form.

Gonorrhœal Rheumatism.—A young man twenty years of age, in whom symptoms of rheumatism persisted for several months after an attack of gonorrhœa. During the acute stage the right hip-joint became spontaneously dislocated. A false joint, with considerable deformity, remains, together with distortion of both wrist-joints, the bones of which are much enlarged.

Other cases of Disseminated Sclerosis, Abdominal Tumour, and of Anomalous Skin Eruption were also shown and discussed.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

A MEETING of the Pathological Section was held on Jan. 10th.

Exhibits.—Dr. M'WEENEY exhibited a number of Pure Cultures and Microscopic Preparations of certain Pathogenic and Non-pathogenic Organisms from the laboratory of Professor Koch of Berlin.—Mr. STORY informed the section that the General Council of the Academy had granted a sum of money for the purchase of microscopes, by means of which pathological preparations could be exhibited at meetings of the section in a better way than had been possible heretofore.—Dr. PATERSON was under the impression that the micrococcus tetragonus was one of the anaerobic species, and was therefore not likely to develop within the walls of abscesses in the lung, and so he was inclined to doubt whether the specimen shown was a pure specimen of the variety in question.—Dr. M'WEENEY replied that he was obliged to quote against Dr. Paterson's remarks the opinion of Dr. Koch's first assistant, Dr. Fraenkel, who, in his book "Grundriss der Bakterienkunde," stated that the micrococcus tetragonus was aerobic, and did not succeed except in the presence of abundance of oxygen.

Case of Injury to the Liver.—Dr. BERNARD submitted a case of Injury to the Liver from a crushing blow inflicted by a laden cart. The patient lived forty-two hours. There were two contusions of the upper surface, and an extensive laceration of the Spigelian lobe. Before death the temperature had been high, and the urine contained sugar.—The PRESIDENT mentioned a similar case from his own experience, where, as was usual in cases of intra-abdominal hæmorrhage, the individual lived for about five days and then died from inflammation of the brain. He hoped to show a specimen from the case at the next meeting of the section. The present was a most valuable contribution to their knowledge of the subject, particularly with reference to a matter which he (the President) had overlooked—viz., the presence of saccharin urine as affording any evidence of rupture of the liver. He had dealt with a good many ruptured livers, and had never tested for sugar.—In reply to questions, Dr. BERNARD said that both the patient's shoulders were affected with pain, but he did not complain of any in the abdomen. His viscera were all healthy, and his intestines uninjured but full of flatus.

The Pathology of Empyema.—Dr. H. T. BEWLEY read a paper on the Pathology of Empyema. He stated that this disease was due to the entrance of pus-producing micro-organisms into the pleural sac; that these organisms belong to several varieties; and they reach the pleural sac by different routes. Basing his classification on pathological grounds, he distinguished five varieties of empyema:—1. Those in which pyogenic micrococci made their way into the pleural sac through an opening in the chest wall or in the lung into the pleural cavity. 2. In which pneumonococci occurred in connexion with croupous pneumonia. 3. In which tubercular cases occurred in persons affected with phthisis. 4. In which pyogenic micrococci were able to enter and live for some time in the tissues of the human body without doing any harm. Unless any part of the body were sufficiently injured by inflammation or by any other cause the micrococci became able to multiply in this weakened spot and to produce suppuration. 5. In which the affection occurred in connexion with general pyæmia.—The PRESIDENT remarked that some months ago, on reading experiments by Koch in connexion with the production of osteomyelitis by the feeding of animals on putrescent matter, it occurred to him that clinical observations made in this city years before micrococci were thought of had led to the same conclusion. Nearly twenty years ago his late colleague, Sir Edward Sinclair, said to him: "If you want to produce puerperal fever in a recently delivered patient, your surest way of doing so is to let her eat game."—Dr. M'WEENEY asked Dr. Bewley whether empyema could be produced by tubercular bacilli or the bacilli of acute pneumonia. If empyema was a collection of pus in the pleural cavity, it should be produced either by the staphylococcus pyogenes, aureus or albus, or the micrococcus pyogenes.—Dr. DOYLE remarked that in the expectoration of a patient who had been under his care for catarrhal pneumonia he has discovered numbers of very minute bacilli.—Dr. GRAVES said it was a well-known fact that in children tubercle could exist for a number of years on the surface of the pleura without producing pus; and even afterwards, in the event of effusion taking place, there might still be no pus.—Dr. MYLES thought the normal tendency in every case of tubercle was to produce pus.—Dr. BEWLEY referred to Professor Fraenkel's book, where it was stated that he had found a pure cultivation of the pneumonia coccus in the pus of several cases of empyema.

Reviews and Notices of Books.

History and Pathology of Vaccination. By EDGAR M. CROOKSHANK, M.B. Vol. I.: A Critical Inquiry. Vol. II.: Selected Essays. London: H. K. Lewis. 1889.

WE have already indicated the scope and tenour of this work, which is ostensibly a critical review of the origin of vaccination and of the sources of vaccine lymph, leading up to the conclusion that there is no scientific support for the practice, and that it is destined, in more enlightened times, to fall into desuetude, being replaced by what the author deems to be the more rational and comprehensible procedures of the compulsory notification of small-pox and the isolation of all cases of this disease. The work claims, then, to be mainly historical, but the writer cannot avoid giving it a polemical turn. It is perhaps singular that Professor Crookshank, whose ability as a bacteriologist is admittedly high, should have refrained from an attempt to throw light upon the question by an investigation into the intimate nature of the virus of small-pox and of its alleged prophylactic. Yet those who look for new facts of this kind are doomed to disappointment. He seems to have been led into this historical research by having lighted upon cow-pox in Wiltshire when engaged in disputing the accuracy of the views of the Local Government Board upon cow scarlatina, and he appears to have been further stimulated thereto by the writings of Dr. Creighton on cow-pox and vaccinal syphilis. It may also be gathered from his conclusions that he had found it difficult to reconcile the practice of vaccination with the discoveries of Pasteur upon the protective efficacy of inoculations with attenuated viruses. And the outcome of his studies would seem to be that there is no parallelism between the two

procedures, since the sources of "vaccine lymph" have been so varied, also that the assumption that vaccinia is an attenuated form of variola is quite untenable. From this he thinks it must follow that vaccination is no prophylactic for variola. We would venture to remind him that there is another side of the shield at which he has not deigned to glance. The efficacy of vaccination cannot be determined by any amount of demonstration of fallacies in reasoning or theory of its early advocates, nor by any proof that "vaccine" is derived from more sources than one. Surely it is not scientific, but much the reverse, to condemn a practice, the value of which is so universally admitted, because its introducer held views as to its nature which, as Professor Crookshank believes, the progress of inquiry has failed to substantiate, or because there has been variety of opinion as to the relationship between vaccinia and variola. All these and numberless other theories may be shown to be untenable in the light of modern knowledge, and yet not affect the real question at issue. We hold, and must continue to maintain, that it would be criminal folly to abandon vaccination on such grounds, in the face of all the facts of its practical efficacy. The opponents of vaccination must explain away the accumulated facts of experience as to the mitigation and prevention of small-pox before we can accept their theories or consider that Professor Crookshank is justified in his conclusions. We cannot but express our regret that he should have promulgated such conclusions upon such grounds. For we seriously think that before he can justly claim to be heard in the matter he must extend the range of his studies. He must not be content to condemn the practice on the *a priori* basis of the incompatibility of the practice with that of inoculation with attenuated virus. He must master the accumulated evidence which every civilised country can afford in support of vaccination, and then we should not be surprised if so earnest a seeker after truth would be the first to admit that he had erred in condemning the practice on insufficient grounds; also to admit that to explain the prophylactic power of vaccination requires a reconsideration of the dicta of a science as yet in its infancy, and the admission of things as yet "undreamt of" in his philosophy. It is often urged that the lessened mortality from small-pox is to be attributed to other circumstances than the introduction of vaccination; such, for instance, as the factors which have contributed to diminish some other infectious diseases, and the permeation and practice of the principles of sanitary science. It is surely idle to urge such reasoning in face of the fact that vaccination has been practised for three times the period that the principles of sanitation have been put in force; whilst we are as yet so far from a state of perfection in this latter regard that measles and whooping-cough (zymotics manifesting themselves almost wholly in childhood, just as small-pox did in pre-vaccination times) have remained practically untouched by all that has been done.

It is most unfortunate, to use no stronger term, that it would seem to be impossible for writers on this question to avoid a bias in one or other direction, according to their views as to the efficacy or futility of the practice. We feel sure that Professor Crookshank meant to be impartial when he commenced his laborious study, and we are inclined to look on the inclusion in his selected essays of writings from both sides of the subject as an evidence of impartiality, though as a matter of fact he himself is of opinion that all the essays are in reality condemnatory of vaccination. Moreover, nothing could be fairer than the way in which he deals with the instructive history of small-pox inoculation; but there he was not on debateable ground, or rather on ground upon which there is not now any dispute. The reader of these opening chapters might have expected to find the same judicial tone maintained throughout. But alas! no sooner does he approach the history of cow-pox and the life and writings of Jenner than—unconsciously it may be, but very obviously—the author seems to exchange the *rôle* of the historian for that of the partisan. It is no justification to assert that the advocates of vaccination have been also imbued with partisanship; their writings are not the better or more convincing for hard words or violent language. We are bound to say that in the minute dissection to which Professor Crookshank has subjected the writings and letters of Jenner, the way in which isolated passages are made to stand out as of more importance than the context, the hypercritical scrutiny of his first manuscript copy of the "Inquiry" with the later-published copy with which it is compared, the prominence given to the attacks of Birch (who as a surgeon is obviously biased in his objection to the introduction of a practice which would supplant inoculation), and the general impression given of Jenner as a man,—in these and other points there is far more of the advocate than of the impartial judge. We wonder if the life and character of Edward Jenner will ever be written in the spirit of the unprejudiced historian. Who can reconcile the estimates of a Baron and of a Creighton upon this one man's life? Professor Crookshank does not help us to a clearer view, except so far as we may gather from the letters of Jenner himself, and even the selection and arrangement of a dead man's correspondence may not be free from bias.

The fact that protection from small-pox was afforded by cow-pox was a "tradition of the dairymaids" in Gloucestershire and elsewhere is no ground for detraction of Jenner, who himself was aware of this "tradition," and, in spite of what has been said to the contrary, often dwelt and pondered on it before he published the fact to the world. Nor can we see that the worthy farmer of Purbeck, Jesty, who boldly inoculated his wife and children (with a stocking needle) with cow-pox in 1774, or twenty-four years before Jenner published his "Inquiry," can affect the claims of Jenner to the gratitude of mankind. It is true that the "original Vaccine Pock Institution" (not the Jennerian Society, as erroneously stated by the author, but, on the contrary, Pearson's rival establishment), invited Jesty to London, and had him sit for his portrait, of which a reproduction is given as frontispiece to this work, where the admirable virtues of Jesty and a full account of his family are to be found, from inquiries made by the writer in the vicinity in which he dwelt. So much is made of this honest man that it would seem as if Professor Crookshank were wishing to reinstate him in a position of honour of which he had been deprived, and to imply that he, and not Jenner, was the true "discoverer" of vaccination. True, Jesty was the forerunner of Jenner in acting on the "tradition of the dairymaids," by adopting the practice of inoculation (then in vogue for small-pox) for the transmission of cow-pox to his relatives. But to grant him more than this, or to consider that he anticipated Jenner, is absurd. Jenner demonstrated that the cow-pox could be transmitted from arm to arm, and that the lymph from one vesicle could thus be indefinitely propagated. Such a notion, with all its far-reaching results, was far from the thoughts of the farmer of Purbeck.

It is true that Jenner met with disappointments. He thought that if vaccination were properly performed, small-pox would be extinguished. When, as years rolled by, his hopes were found to be too sanguine—and we cannot blame him for believing that his conditions for success had not been fulfilled—there is no wonder that he had reason to be worried or perplexed, or that he should have written strongly in reference to his opponents. What, indeed, could be more natural than that a man who had lighted on a method which promised so much, and who was possessed of greater insight than most of his contempo-

raries, should become impatient of charges laid at the door of vaccination, which it could not rightly be made to bear? We fail to see anything incongruous in his contention that there was a "spurious" cow-pox, seeing how various are the affections of the cow, as Ceely showed later, but we think that many failures can more reasonably be put to the charge of inefficient performance of vaccination. Such has been the main cause of failure ever since vaccination was practised, and it has been proved in numerous instances. On the other hand, the opponents of the practice can supply no answer to the instances of undoubted protection which abound, and of which, as an example, may be cited the following, quoted by Jenner in a letter to his friend and follower, Dunning:—

"A poor family belonging to Sudeley parish, consisting of a man, his wife, and five children, were vaccinated four or five years ago, except the eldest daughter, who had been before inoculated for the small-pox by an eminent practitioner, and pronounced secure. This summer she caught the small-pox when working among the rags at the paper mills, and had a very numerous and confluent eruption. The rest of the family have no fears, and have all escaped, though fully exposed to the infection."

How many such examples of the protective efficacy of vaccination have occurred since that early record.

A single instance may suffice to show, not only the bias displayed by Professor Crookshank, but also the source of much of his feeling against Jenner. Dr. Creighton, in his work "Jenner and Vaccination," pp. 66–68, states that Jenner inoculated a boy, John Baker, with horse grease, and urges that in consequence the boy took erysipelas from which he died, and that in his inquiry Jenner, in mentioning why he had not applied the variolous test to the case, conceals the death, and merely says that the boy "felt the effects of a contagious fever," but that a year afterwards, in his next pamphlet, Jenner, "with simple inadvertence," discloses the fact that the boy "was rendered unfit for inoculation by unhappily becoming a corpse." The charge is that Jenner by a "reckless" experiment killed the boy, and then concealed the death. The facts are that on March 16th, 1798, Jenner inoculated the boy with horse-pox, and that on April 24th, or less than six weeks afterwards, he went to London to get his "Inquiry" published. In it he states, Dr. Creighton says, he had not had the opportunity of applying the variolous test owing to the boy suffering from a fever. Finally, in his "Further Observations," published in the following year, we learn from a foot-note that the fever proved fatal. The whole charge of concealment depends, first, on the assumption that the boy was dead; and secondly, that Jenner knew of his death in time to let the fact be published in the "Inquiry," and this, though Jenner left Berkeley for London so shortly after the inoculation. There is absolutely no proof of the truth of either assumption. That the "contagious fever" was erysipelas, Dr. Creighton concludes, because (1) though Jenner says the boy was free from indisposition on the eighth day, Baron mentions (quoting from Jenner's notes) "the disposition of John Baker's pustule to run into an ulcer"; and (2) that erysipelas "is both a fever and contagious." On such grounds is the charge made that the death was concealed under the euphemism of "feeling the effects of a contagious fever." Turning now to Professor Crookshank's references to the matter, we find Jenner's drawing (Plate 16) of Baker's arm, described as belonging to the "fatal case of John Baker," while (pp. 269–273) the whole of Dr. Creighton's theory regarding it is laboriously built up again, point after point, the sole reference to that author consisting in a foot-note to p. 273, "Compare Creighton, 'Cow-pox and Vaccinal Syphilis,'" p. 32.

When he leaves Jenner and his "Inquiry" behind, the author is once more on ground in which he can speak with more freedom from prejudice. His several chapters upon the sources of vaccine lymph are carefully compiled, and doubtless accurate in detail. The most interesting are the chapters of variolation of the cow as practised by Ceely and Badcock, and that upon horse-pox; although perhaps undue stress is laid on the latter, and some doubt may be expressed regarding it and its relation to horse grease, which Jenner thought to be the origin of cow-pox. It is nevertheless interesting to have the history of horse-pox so fully told (although its comparison to syphilis, which is suggested as confirming Dr. Creighton's surmise as to the homologies of cow-pox, is surely overstrained, based as it is on one outbreak of horse-pox by accidental contagion *in coitu*). Nevertheless these chapters are among the most useful of Professor Crookshank's work. The subject of vaccination has been too much neglected from the point of view that they embrace, although the facts and arguments they include cannot be cited as conclusive proof that the practice has no prophylactic value. Whilst grateful to Professor Crookshank for this part of his work, with its ample and excellent illustrations, and, above all, for his selection of memorable but forgotten essays on the subject, which form the second volume, we must emphatically dissent from the statements with which he concludes his review. That our readers may judge of them we will cite them:—"The Jennerian method has for nearly a century struggled for existence with the support of the cow small-pox theory and the numerous and ingenious explanations of failures embodied in the assertions of spurious cow-pox, inefficiently performed vaccination, inferior quality of lymph, deficiency in the number and quality of marks, and the misinterpretation of statistics..... Inoculation of cow-pox does not have the least effect in affording immunity from the analogous disease in man, syphilis, and neither do cow-pox, sheep-pox, cattle plague, or any other radically dissimilar disease, exercise any specific protective power against human small-pox."

Such statements are entirely opposed to universal experience; to experiences both of prevention of small-pox and of mitigation of its attacks; to experiences which belong to every quarter of the globe and which are far more to be trusted than the theories of comparative pathology, however suggestive and however interesting these may be.

OUR LIBRARY TABLE.

Papers on Surgery and Pathology and Allied Subjects. By F. LE GROS CLARK, F.R.S., Consulting Surgeon to St. Thomas's Hospital, formerly President and Hunterian Professor of Surgery and Pathology in the Royal College of Surgeons, &c. Adlard and Son, Bartholomew-close. 1889.—This book is addressed to the author's old friends who were students at St. Thomas's Hospital during the forty-three years that he was a teacher as well as a learner in the school, and "the scattered papers contained in it have been collected chiefly for distribution among a few of the author's old pupils and personal friends." It is a really interesting and valuable work, not merely as coming from a revered, though happily in mind and body still active, octogenarian, but on account of the philosophic thought which pervades it. It carries us back to the days of Travers, Green, and Tyrrell at St. Thomas's, and of Key, Morgan, and Bransby Cooper at Guy's—to the time when bleeding and issues were in the ascendant, and when the apprenticeship system, the discontinuance of which the author much regrets, was in full force; and it carries us through all the intervening periods to the antiseptic era. It bears throughout the stamp of the wise and thoughtful as well as of the practical surgeon. Facts are given their due place and weight, and the reasons for things are ever being given or sought for. There is abundance of practical hints and wise

suggestions, but the chief merit of the work consists in the thoughtful and scientific manner in which the several subjects are treated, which raises it above the level of ordinary surgical writings, and tells of the high quality of the author's mind. Almost all the remarks are good, to the point, and not fatiguing, thus bearing the stamp of the wise directions given (p. 57) as to "note-taking." The chapter on Heredity is a good example of what we have said, and the account of Headache is so graphic as to suggest that the author may himself have been a victim to that painful and temporarily incapacitating malady. The papers are of a varied kind, including, besides records of a more practical kind, dissertations on the "Faculty of Observation," the "Faculty of Association," the "Mechanism of Respiration," the "Anatomy of the Urinary Bladder and Rectum," the "Evolution and Affinity of Disease," the "Relation of Natural Science to the Christian Faith," &c., forming altogether a volume which conveys thoroughly the impression *vitæ bene actæ*, and the consolation which the author may well derive from the reflection thereon.

On Bacillary Consumption: its Nature and Treatment in the true First Stage. By HORACE DOBELL, M.D. London: Smith, Elder, and Co. 1889.—The author of this book has been actuated by the laudable desire to impress on the medical profession the importance of recognising that, on the bacillary doctrine of phthisis, there must be a special constitutional condition which renders the subject vulnerable to the tubercular virus. He hesitates to admit that the bacillus is the sole cause of tuberculisation, but nevertheless considers it to be proved that it is perhaps the chief agent, and that it is essential to have regard to the various ways in which it may gain entrance into the body. He quotes largely from recent writers upon the nature of phthisis and the forms of tuberculosis with reference to the bacillus, and shows correctly that the attitude of the practitioner in dealing with the disease is not altered from that advanced in days before the bacillus was thought of. Then, as now, the importance of prophylaxis was fully recognised. It, however, acquires increased force from the discovery, and we consider Dr. Dobell amply justified in believing that there is a "prebacillary stage" where, by judicious attention to diet and hygiene, the supervention of phthisis may be warded off. Thus there is nothing specially novel in the teaching he impresses, unless it be in his suggestion of a system of tours to be undertaken by the predisposed (p. 118). His remarks on the changing fashions of medical "belief" (p. 98) are, we fear, only too true. Medicine is far from being an exact science, and with all our increased pathological knowledge its treatment is largely influenced by current doctrine.

A Guide to the Alterations in the British Pharmacopœia (1885). By PROSSER JAMES, M.D. Third Edition. J. & A. Churchill. 1889.—This third edition comes somewhat as a surprise. When this little book was first published in 1885, within a very short time of the appearance of the British Pharmacopœia of that year, it no doubt served usefully to draw attention to the various innovations, and perhaps enabled some few to go on working with old text-books of materia medica. The second edition was published five weeks after the first, apparently to meet the demand. Now, however, all text-books with any circulation have incorporated the new material of the British Pharmacopœia of 1885; hence the *raison d'être* of this book is no longer apparent.

Ophthalmological Transactions. Vol. IX. Session 1888–89. London: J. & A. Churchill.—This volume commences with the Bowman Lecture by Mr. Henry Swanzy, who took as his text the Value of Eye Symptoms in the Localisation of Cerebral Disease, and deals with the subject in a very interesting manner. He points out that the interests of science would be materially advanced if physicians and surgeons would entrust the autopsies of interesting cases to skilled pathologists and microscopists, whilst he is disposed to think that eye symptoms are too often overlooked or not looked for at first, but utilised rather as a *dernier ressort*. He thinks that the term "indirect" so often applied to the effects of brain disease upon the eye should be replaced by the term "distant," as being more suitable. He then passes in review the symptoms derivable from the motor apparatus, such as conjugate lateral deviation, failure of power to rotate the eye upwards, loss of power of convergence, ptosis, nystagmus, and the condition of the pupils, and then the localising symptoms derivable from the visual apparatus, such as hemianopsia, hemiachromatopsia, and blindness of one or both eyes. The body of the volume is occupied with details of cases, some of which, like that of Mr. Lang on a case of Exophthalmos, Dr. Werner's case of Subconjunctival Cysticercus, and Messrs. Edmunds and Lawford's case of Retinal Changes in a fatal case of Alcoholism, with those of Mr. Hutchinson, jun., on Retino-choroiditis due to Concussion, and Mr. Adams Frost's, Mr. Hartridge's, and Dr. Mules' cases of Retinal Disease, are of great interest. There are several well-executed chromo-lithographs.

The Journal of Anatomy and Physiology. Conducted by Professor HUMPHRY, Sir WILLIAM TURNER, and Professor M'KENDRICK. Vol. XXIV. January, 1890. London: Williams and Norgate.—As usual, the *Journal of Anatomy and Physiology* contains a large number of contributions, of which some—like those of Professor Stirling on Dry Cover-glass Microscopical Preparations, and of W. F. Robertson on a New Method of Embedding Fresh and Hardened Tissues—are interesting to microscopists; others, like those of Professor Cunningham on the Intra-parietal Sulcus of the Brain, of Gordon Brodie on the Coraco-acromial and Coraco-humeral Ligaments of the Shoulder-joint, of Tuckerman on the Gustatory Organs of Procyon Lotor, and of Kenneth Douglas on the Anatomy of the Transversalis Muscle and its relation to Inguinal Hernia, will be read with interest by the anatomist; others, like those of Schufeldt on the Comparative Osteology of Arctic and Subarctic Waterbirds, of Ewart on the Spiracles of the Porbeagle Shark, and of Woodhead and Gray on the Stomach of the Narwhal, will occupy the attention of the comparative anatomists; whilst there are yet others that are interesting to the teratologist and to the physiologist. Professor Sir W. Turner contributes a long paper on the Cell Theory, Past and Present.

The Quarterly Journal of Microscopical Science. No. 119. Vol. XXX., Part 3. December, 1889. London: J. & A. Churchill.—This part is entirely occupied with two memoirs: one, by Professor Waldeyer, on Karyokinesis and its relation to the Process of Fertilisation; and the second, by Professor Hubrecht of Utrecht, on the Placentation of Erinaceus Europæus, with remarks on the phytogeny of the placenta. Waldeyer discusses Weissmann's, Butschli's, and v. Beneden's Theories of Fertilisation, and agrees in the main with v. Beneden. He gives a very complete bibliography of the subject, including the names of 210 separate memoirs devoted to cell division.

Simple Shorthand. By WILLIAM HEATHER. London: Groombridge and Sons.—We have received a copy of a recently published shorthand work, called "Simple Shorthand," which purports to be a revised edition of Taylor's system, which was much used a century ago, and on the renown of which the author relies to recommend the present volume. Although much might be said in favour of the system as now published, it is impossible to judge of its real merits until it is shown what it can accomplish in the way of practical results.

New Inventions.

RAINPROOF HYGIENIC CLOTHING.

A SPECIMEN of this manufacture has been submitted to us by Mr. Doré, of 25, Conduit-street, London. As far as we have been able to put it to the test, the process to which the cloth has been subjected appears to justify the claims made for it. This process, whilst rendering the fabric rainproof, offers no impediment to the free circulation of air, and works no detriment to the appearance of the goods. It is also stated to have the merit of exerting a cleansing action on the material and of keeping away moth. These are of course great advantages, and cannot fail to commend themselves to those, amongst others, whose occupations involve much exposure to inclement weather; these merits have, moreover, we are informed, been practically recognised by H.M. War Department

BANDAGE WINDER.

THE "Universal" Bandage Winder is a very cheap apparatus of simple construction, adapted to the wants of hospital wards, ambulance classes, or any department where it is necessary to wind up bandages of a width not exceeding four inches. It consists of four parts, which, fitting together, make an apparatus that can be fixed upon any table or shelf. It acts well, and will much facilitate work, whilst anyone can adjust and fix it. The apparatus is to be obtained of Messrs. Reynolds and Branson, Briggate, Leeds.

HEALTH OF THE NAVY.

No. II.

THE West Coast of Africa and Cape of Good Hope had an average force of 1800, among whom the cases were in the proportion of 1269, the deaths 3·88, the invaliding 39·44, and the daily sick 42·43 per 1000. The cases and daily sick were higher, but the deaths and invaliding lower than in the preceding year. There were 369 cases of malarial fevers, of which 240 were of the remittent type, but with only 1 death. They were the result of service on the coast and up the rivers. The surgeon of the *Goshawk* reports that quinine given as a prophylactic seemed "to have little effect in warding off fever from the ship's company," and the surgeon of the *Alecto* states of arsenic that "his experience was not favourable to it as a prophylactic." No case of enteric fever was recorded. The *Landrail*, in a strength of 103, returned 20 cases under the "effects of climate or of heat," chiefly among the engine-room staff and stokers, 18 of them while serving in the Bights; none of them died. There were only 2 deaths in the class of injuries, 1 by drowning, and the other that of a marine from multiple injury received while engaged blasting rock; his companion had both his eyeballs ruptured and vision destroyed by the explosion.

On the East Indies station the mean force was 2280, from which the cases were 1757, the deaths 12·28, the invaliding 64·91, and the daily sick 54·89 per 1000, all but the deaths lower than in 1887, though, except the mean sick, above the decennial average. Fevers, continued and malarial, were the cause of 396 cases per 1000 of strength and 3·94 deaths. The malarial fevers appear to have been contracted chiefly on the Zanzibar coast and in the Persian Gulf. Of enteric fever there were 17 cases, with 6 deaths. Three cases, all fatal, were contracted at Zanzibar; 4, of which 2 died, at Karachi, and 2 cases, with 1 death, at Mauritius. None of them have been attributed to an insanitary condition of the ship. Only 1 case of cholera was reported, which proved fatal at Trincomalee. There were 39 cases and 2 deaths of heat stroke, most of which, including the 2 fatal cases, occurred during the summer months at Muscat in the Persian Gulf. There do not appear to have been any deaths by drowning. Four cases of wounds in action were recorded, of which 2 proved fatal; they were received in chasing slave dhows, 3 on the Zanzibar coast, and 1 off the coast of Madagascar.

In the force on the China station, averaging 3950, the proportion of cases was 1278, of deaths 5·56, of invaliding 19·74, and of daily sick 50·44 per 1000, all except the last showing a decrease upon the results for the preceding year, and all under the average. There were 12 cases of small-pox, 1 fatal, all contracted at Hong-Kong, where the disease was epidemic. There were 17 cases of enteric fever, with 5 deaths; seven cases, with 2 deaths, in the *Cockchafer* were "attributed to drinking mineral waters prepared by natives;" 5 of them originated at Shanghai and 2 at Wu-hu. Seven cases of cholera, of which 2 died, were recorded—4 at Hong-Kong, 2 at Shanghai, and 1 at Singapore. A case returned under the head of anæmia is reported to have closely resembled beri-beri, or the kak-ke, of Japan. He recovered under suitable diet and ferruginous tonics. There were 10 cases of poisoning returned, 4 by lead, 2 by unwholesome fish, and 4 by cheese; all recovered. Upwards of 20 other men suffered from eating the cheese but were not put on the sick list. There were 4 deaths by drowning, and a corporal of marines was murdered in the streets of Shanghai.

The average strength on the Australian station was 2000; the cases were in the ratio of 1134, the deaths of 6·5, the invaliding of 16·0, and the daily sick of 34·8 per 1000. There were 3 cases of enteric fever, believed to have been contracted at Hobart, Auckland, and Melbourne. The sanitary improvements effected at Cockatoo Island by the Colonial authorities at Sydney appear to have been effectual in removing the causes which in the preceding years had been productive of so many cases of this disease. There were 3 deaths by drowning, 1 by a fall from aloft, and 1 from the accidental discharge of a fowling piece. An officer committed suicide by shooting himself.

The mean strength of the Irregular Force was 3600; the cases were in the ratio of 1192, the deaths of 6·6, the invaliding of 15·35, and the daily sick of 46·55 per 1000. There were 34 cases returned as enteric fever, with 4 deaths. Of these, 26 were in the *Volage*, one of the training squadron, while employed on the coast of Ireland, and occurred between July 14th and Sept. 12th, and two of them proved fatal. A detailed account of the outbreak is given; the first cases were supposed to have been contracted at Portsmouth, but the spread of the disease was attributed to the defective ventilation of the ship. The other eight cases apparently originated at Portsmouth, Malta, Suakim, Bombay, and Sydney. Two fatal cases of cholera occurred in the *Impérieuse* at Hong-Kong, where the disease was epidemic. There were 42 cases of heat stroke, all in the Red Sea, Gulf of Aden, or Indian Ocean, and, with but few exceptions, among the engine-room staff and stokers. Seven men were drowned, 4 of them by falling overboard.

The strength of the Royal Marines at head-quarters was 5780; the cases amounted to 907, the deaths to 4·49, the invaliding to 54·49, and the mean sick to 52·01 per 1000. The death-rate corresponds closely with that of the force afloat on the Home Station, but the cases and daily sick are considerably higher. The difference is found chiefly in venereal diseases and in those of the digestive system.

The average number of workmen employed in the dockyards during the year was 22,489. The cases of sickness among them amounted to 230, and of injuries to 105 per 1000, making a total of 335. There were 137 deaths, or in the ratio of 6·09, being considerably higher than among the Marines at head quarters, but as we have no information respecting the relative age distribution of the two bodies no accurate comparison can be made. Only five of the deaths were the result of injuries. The average number constantly on the sick list was 15 per 1000 of strength. Keyham and Devonport had the highest proportion of cases, and Devonport and Chatham of deaths, while Pembroke and Portsmouth had the lowest death-rates.

INFECTIOUS DISEASE IN VICTORIA.—It is reported that no fewer than seventy-four State schools in Victoria have been closed for periods of from one week to twelve weeks, on account of the outbreak of fever or other disease among the children.

THE LANCET.

LONDON: SATURDAY, MARCH 1, 1890.

IT is not matter for surprise that Mr. STANSFELD has proposed an amendment to the Address expressing regret that the local government legislation of 1888 and 1889 is still left defective, and that no intention is announced either of proceeding during the present session to the constitution of District and Parochial Councils in Great Britain, or of carrying further in the metropolis and elsewhere the organisation and powers of local government. The constitution of County Councils has been accomplished with so much success, and has brought into existence so many useful bodies capable of important administrative control, that the regret expressed by Mr. STANSFELD is very generally shared by those who had hoped shortly to see the reorganisation of local government completed.

It cannot be denied that County Councils have already important functions, but the performance of their more important duties is dependent upon the existence of District Councils, and certainly Mr. RITCHIE did not decide to abandon the District Council clauses in his original Bill without feeling that his great measure was left incomplete. It is probable that a little delay in the appointment of District Councils has not been without its usefulness in giving opportunity for County Councillors to complete their own organisation before undertaking the duty of supervision of the less important bodies, but the time has now come when delay will only give rise to discontent, and the Government will undoubtedly be acting wisely in completing the work which has been begun.

In replying to the criticism of the Opposition, Mr. LONG unhesitatingly stated that the Government viewed this amendment not only without dislike, but with absolute contentment and satisfaction, because it was not only not a vote of censure upon the Administration, but was actually an expression of approval of what they had done two sessions ago in legislating in the direction of local self-government, and merely urged upon them to carry to a conclusion the work they had commenced. Her Majesty's Government, indeed, have, through the leader of the House of Commons, expressed their willingness to introduce the desired measure should time permit; it will, therefore, be within the power of the Opposition, not less than of the Government, to bring about the end which both desire.

If there were need to give illustration of the difficulties of the existing position of county administration, it would be unnecessary to go outside the metropolis for this purpose. In the one matter in which both parties claim interest—the housing of the poorer classes—the County Council is deprived of any opportunities of exercising a useful control. In about one-seventh of the districts, the Council are able to ensure that the reports of medical officers of health under the Artisans and Labourers' Dwellings Act of 1868 will receive proper consideration at the hands of the local authorities, and that proceedings of some sort will follow the report; for the rest there is no such certainty, and experience has shown that these statutory representations are often treated with no greater respect than reports which simply give advice to be acted on or disregarded as the authority may choose. In so important a matter as the prevalence of epidemic disease, the County Council receive no reports from medical officers of health in six-sevenths of the county, although disease in one district may be matter of serious concern to others. Thus the authority which could play a useful part in making itself a centre of information for all districts is unable to move. Again, the County Council is entrusted with the duty of representing to the Local Government Board the need for amended administration in any district within the area of its jurisdiction; but under existing circumstances it is practically impotent, however faulty that administration may be. London, therefore, is placed in a position which is intolerable for any large community desirous of possessing an effective government, and other county authorities than that of London are no better circumstanced.

Mr. RITCHIE may well congratulate himself upon the universal desire that his work should not remain unfinished. We are convinced that it will redound to the credit of himself and his colleagues if they do not allow the present session to pass without providing for England and Wales a complete administrative system.

AN important civil action was tried at Newcastle-on-Tyne before Mr. Justice DAY on Feb. 21st between Mr. BEACH and the Imperial Union Accident Assurance Company. Mr. BEACH sued the defendants upon a policy of insurance against accident, the ground of claim being that he had been thrown from his horse on June 5th, 1889, into a hedge, when a thorn entered the right eye and led to the formation of a traumatic cataract. It appeared in the course of the trial that the company had made some material alterations in the terms of their policies whilst the plaintiff had been a policy-holder. Thus in 1877, when Mr. BEACH first insured, his policy contained a provision that in the event of an extra premium being paid the insured should be compensated for partial disablement. In 1882 the company published an amendment of their policy, stating that one-third of the total sum would be paid in the event of permanent partial disablement arising from complete loss of both eyes. In 1887 they decided to pay, in the event of partial disablement, one-half of the sum insured; and, as we understand, they undertook to pay not only in the case of the loss of sight of both eyes, but in the event of total and irrevocable loss of the sight of one eye; accordingly from this time forth the plaintiff considered himself entitled to receive £500, which was one-half of the amount for which the policy was effected. Technical objections were raised that the plaintiff had not informed the company of the nature of the accident before the lapse of a certain period, and that he had not sent in a weekly report of his progress; but the main point for the jury to decide was whether there was any entire or partial disablement, such as was maintained to exist by the plaintiff, and was denied by the insurance company. The company insisted that the terms of the

policy were that the loss of the one eye should be total and irrecoverable, and they further contended that a condition of the policy was that in case of accident the directors or agents might see and examine the nature of the injury, and be at liberty to provide such medical attendance as should be necessary. To put the matter shortly, the company, admitting the accident and the subsequent formation of cataract in one eye, contended that, far from there being any complete, there was not even partial disablement, since the cataract could be successfully removed by operation, which operation they were perfectly willing to send their own agent to perform. The plaintiff, on the other hand, contended that the accident had deprived him of the sight of one eye by cataract, and, acting under advice, was not willing to undergo the operation for its removal, and, as might easily be imagined, was certainly not willing to submit himself to the medical adviser of the company for that purpose. The point is a nice one. Many accidents might occur, capable of producing partial disablement, yet capable of cure, in which the insured might prefer to draw his money regularly rather than undergo a slight operation which would restore the use of the disabled part, and to which the insurance company might reasonably insist upon the patient submitting himself. But injuries to an eye causing cataract belong, it appears to us, to a different category. No doubt the opaque lens could be extracted, and no doubt that, with a glass, excellent vision might be restored to the eye; but surely no ophthalmic surgeon would commit himself to the statement that the patient was in as good a state, and could see as well, after, as before the operation. The confused images resulting from a difference of a few dioptres in otherwise normal eyes are, it is well known, exceedingly difficult to overcome by correction of the error with appropriate glasses, and many persons decline to wear such glasses, preferring to rely upon one eye; and we are quite sure there are some surgeons who would, like Mr. BEACH, decline to have an operation performed on cataract affecting one eye only. In fact, it is a general rule in ophthalmic surgery that, in cases where cataract exists in one eye, no operation should be undertaken as long as the other eye is normal. Quite apart from this is the possibility that in such an accident as that from which Mr. BEACH suffered, other injury to the eye may have been inflicted, which might cause the operation of needling to be fruitless; and, finally, even in needling a simple case of traumatic cataract, not only might troublesome complications arise, but in many instances such complications actually have arisen, and have led to total loss of vision in both eyes. Mr. BEACH was, it appears to us, quite justified in his determination to bear the ills he had rather than fly to others he knew not of. The questions which Mr. Justice DAY put to the jury were: first, whether, in the event of the proposed operation being successful, the sight of the eye would in the judgment of the jury be recovered; and, secondly, whether a reasonably prudent and uninsured person would undergo the operation. The jury answered both questions in the negative, and judgment was accordingly given for the full amount for the plaintiff. In this we see no reflection on ophthalmic surgery, nor on the able ophthalmic surgeons who were called for the defence. It appears to us that the finding of the jury was alike good in law and in accordance with common sense.

MR. GLADSTONE has written a very important letter on Grocers' Licences, in connexion with which he has a responsibility which some of his best friends and supporters feel to be very heavy. There is a wide belief that these licences greatly favour the furtive and excessive use of alcohol, especially among women, not excepting young women of the upper classes. This growth of drinking among women seems a most painful novelty in our civilisation, and is shown, amongst other things, by the greater boldness with which they enter public-houses, railway and other refreshment rooms, and confectioners' shops, where the demand for confectionery is but a cover for a glass of sherry or champagne. The use of public-houses by women and girls is remarked with surprise by old men of no austere views. A recent writer in a new magazine, "The Three Spires," gives an account of a conversation with Mr. GLADSTONE on this question, in which the writer told the venerable statesman that it was sad to see how many more young girls frequented the public-house than young men of the same age. This seemed to surprise Mr. GLADSTONE, whereupon the writer gave him the facts taken from observations made in Nottingham, showing that between the hours of 7 and 11 P.M. on Saturday, 460 lads, apparently under twenty-one years of age, entered seven public-houses, but during the same time 1009 girls of the same age did so; the reason being that the girls were generally treated to drink, while the lads had to pay for themselves. No wonder that Mr. GLADSTONE expressed his horror and surprise. The only question is whether such facts can represent a general state of things. We hope not, though we have heard of similar observations in London. Be this as it may, there is a very general impression that there is too much drinking among women, and that this is facilitated among women of the upper classes by grocers' licences and by retail *beer* and *wine* licences together. These last, dating from 1880, have increased from 2770 to 4630—consumption *on* the premises. The class of licences chiefly used by grocers has gone up from 3251 in 1870 to 6210 in 1889. The impression against these sorts of licences is very general among medical men. Mr. GLADSTONE'S former apparent indifference to this evil may be partly explained, if not excused, by the conclusion of the Lords' Committee on Intemperance, that a sufficient case against grocers' licence had not up to that time (1879) been made out. It is satisfactory to find that he now speaks in regard to them as if he felt the responsibility which those who study drunkenness have long felt to attach to his creation of such kinds of licences. His defence amounts to this: that he acted thus, as he thought, in the interests of temperance and on the advice of Lord SHAFTESBURY and Dr. GUTHRIE. It would be difficult to have found outside the medical profession two men more entitled to respect in such a matter. They are gone, but the ex-Premier's responsibility remains, and it is with peculiar satisfaction we find him saying with complete candour that if evil results can be proved to have followed the licensing of grocers for the sale of drink

he is prepared to abolish the system. Here is a challenge to all who disapprove these licences. Of course it would be easy for Mr. GLADSTONE to require a kind of proof that it would not be easy to give him. In the very nature of the case the proof is difficult. People who take advantage of the grocer's licence are just the very people to give little public evidence of their vice. It is a furtive thing, known only to their families and to their medical men, neither of whom are likely to divulge the matter. The drunkenness of women is a pitiable subject that may well excite the attention of statesmen. Once established, it is most difficult to alter or to cure. It is a thing to be avoided and discouraged by everything that law or custom can do. Of all statesmen capable of legislation in this direction, and of whom such legislation may be expected, there is none more notable than Mr. GLADSTONE, and we shall look with much interest to see whether his letter is followed by action.

Annotations.

"Ne quid nimis."

UNIVERSITY OF LONDON.

A CONFERENCE between the representatives of the Councils of University and King's Colleges and the Senate of the University of London took place on Thursday last, to consider Professor Carey Foster's scheme. A special meeting of the Fellows of the Royal College of Physicians is summoned for to-day (Saturday) at 5 P.M., at which a report from the Special Committee will be submitted. The tenour of this report is to suggest that whilst the Matriculation and Preliminary Scientific M.B. examinations remain to be conducted by the University of London, the second and third Professional Examinations of the Conjoint Board should be accepted in the case of *pass* candidates for the M.B. and M.D. degrees of the University, instead of the present Intermediate and Final M.B. examinations.

LEAD POISONING AT SHEFFIELD.

THE outbreak of lead poisoning at Sheffield is attracting considerable attention, and the corporation have appointed a commission to investigate into its origin. Attached to this commission, as experts, are Mr. Hawksley, C.E., Professor Dewar, and Dr. Bristowe, names which at once guarantee that the investigation will be a searching one. One of the difficulties in the way of the inquiry is the fact that there is, independently of any possible contamination of the drinking water with lead, either at its source of supply or in the course of its distribution, a considerable number of cases of plumbism due to the impregnation of lead in various manufactures carried on in the town, and that a very careful inquiry is necessary in each case to determine the channel by which the metal has entered the system. However this may be, and it is a matter to be borne in mind, still the evidence of the medical men of the town and district makes it clear that in many of the cases reported the poison was received through the water supplied from the Redmires reservoir. Dr. Thomson, medical officer of health, gave evidence that in one sample of water which had been standing in the house supply pipes one hour the amount per gallon was ·4 gr. per gallon, and ·05 gr. per gallon after the water had been running from the tap. Another analysis gave 2·1 gr. per gallon when taken from the pipes, and ·1 gr. after running from the tap. In a case mentioned in evidence by Mr. Pye-Smith half a grain per gallon was found in the water drawn off after standing in the pipes all night. Dr. Porter stated that during the last eight years he had met with 252 cases, of which 169 were attributable to trade, and 83 to water, in default of any other apparent cause. Dr. Dyson stated that since last October he had had twenty cases come into his consulting room, and that he had been into eighty streets where he had seen cases. Mr. Favell regarded the water as a distinct cause of the outbreak, and believed the water supplied to many parts of Sheffield was impregnated with a dangerous amount of lead. But though opinion among the members of the profession at Sheffield is pretty unanimous in regarding the water supplied to some parts of the town as the cause of a very large proportion of the cases of plumbism, still the suggestions offered as to the best means of preventing the contamination are various. Among the chief propositions are—treating the water of the reservoir by the lime process, or by "polarite," a material which it is stated will not only restrain the solvent action of water on lead, but will also remove the lead when dissolved in water; or by the use of "rotatory purifiers"; or, lastly, by doing away entirely with the lead service pipes. Our opinion in favour of this latter step has already been expressed. Whatever other step be adopted, the old service pipes, which are undoubtedly encrusted with carbonate of lead, should be removed. There remains, of course, the difficulty as to the incidence of the cost of their renewal. In the wealthier districts, no doubt, the tenants would do the work for themselves without waiting for the water company or the corporation to act; but with the poorer inhabitants the case would be different. On the other hand, it will probably take a long time to enforce action on the water company. Meantime a considerable consumption of impregnated water is sure to be going on in households who are careless or ignorant, and do not, or will not, take the simple precaution of letting the tap run for some minutes before collecting the water for use. It may therefore be a matter for consideration whether, as a temporary measure, it will not be advisable in the affected districts to place iron standpipes in the streets from which the inhabitants might draw their drinking water.

THE CAUSE OF PALLOR.

DR. OPPENHEIMER has published some careful observations on the blood of 109 pale female subjects (servant girls) conducted by means of Zeiss and Thomas's hæmocytometer and Gowers's hæmoglobinometer. He considers the lowest number of corpuscles per cubic millimetre in a normal state of health as four million, and the lowest amount of hæmoglobin in health 90 per cent. He also agrees with Gräber's dictum: "Number of corpuscles and hæmoglobin both diminished = acute and chronic anæmia. Number of corpuscles diminished, hæmoglobin relatively increased = primary chlorosis or pernicious anæmia. Number normal, hæmoglobin diminished = chlorosis." In severe cases of chlorosis, with tendency to faintness, headache, heart symptoms, and œdema without albuminuria, the hæmoglobin varied from 30 to 50 per cent. In fifty-five of the cases the condition of the blood was normal. These patients were found to be suffering from phthisis, cardiac disease (compensated), gastric ulcer, and various affections of stomach, intestines, or genital organs. Phthisis of itself—that is to say, before hæmorrhage or diarrhœa or profuse expectoration had come on—appeared to have no effect on the blood. An interesting result was obtained in connexion with gastric ulcer. In simple ulcer the blood was normal, except when there had just been hæmatemesis, but in carcinoma of the stomach both the number of the corpuscles and the hæmoglobin were subnormal. Pale girls sometimes take iron for a long time

without any visible improvement. Dr. Oppenheimer finds that such patients are not anæmic, but chlorotic from some uterine or other affection, so that when the blood is found to be normal it is advisable to make a vaginal examination. The pallor of patients with normal blood appears to be due to the insufficient filling of the cutaneous capillaries. From the observations of Dastre and Morat there would seem to be an antagonism between the bloodvessels of the skin and those of the abdomen; so that if one of these systems becomes dilated, the other, by an automatic reflex action, invariably become contracted. Because of the fact that irritation of the depressor nerve of the heart induces dilatation of the abdominal vessels and contraction of the cutaneous vessels, Dr. Oppenheimer believes that the pallor of phthisis, cardiac diseases, and kidney mischief is due to reflex action. In these affections the heart has extra work to do, and this affects, by means of the depressor nerve, the vaso-motor centre, causing a diminution of the cutaneous flow, and consequently a dilatation of the abdominal vessels. The pallor observed in most inflammatory affections of the hypogastric viscera may probably be explained also by the reflex action of the hyperæmic abdominal vessels upon the calibre of the cutaneous vessels.

LEGISLATION AND MILK EPIDEMICS.

THE Local Authorities (Further Powers) Bill, introduced by Mr. H. H. Fowler, M.P., and other members, seeks to secure for sanitary authorities generally a number of powers which have been granted in special cases under private and local Acts. One of these, which is of great importance, has been attracting the attention of the Health Committee of the Liverpool Corporation, who have suggested that Dr. Stopford Taylor should communicate any suggestions he may have to make on it to the Parliamentary Committee. The clause empowers sanitary authorities to require of any milk dealer a list of his customers, the power to be used on such occasions as the occurrence of epidemics believed to be associated with the distribution of certain milk-supplies. The discoveries made during recent years as to the ability of milk to serve as a vehicle for the diffusion of certain specific contagia make it certain that such a provision is generally needed, and we are of opinion that, as also provided by the Bill in question, the requirement should extend to dairies and milk establishments which are outside the district in which the disease prevails, whenever the inhabitants of the district infected are known to procure their milk-supply from another district than that in which they reside. Without the additional information referred to, it would have been quite impossible to have detected the source of the mischief which has during several epidemic outbreaks caused a large amount of disease and of death amongst London and other large town communities.

THE "AUXILIUM."

THIS is the name given by its Italian inventor to a new addition to the equipment of the field hospital service. It claims to minimise the chances of injury to the wounded during the application of primary surgical aid, and to obviate the accidents which in that stage of treatment so often give a fatal turn to lesions otherwise curable. It is a wheeled conveyance of very solid and at the same time of very light and even elegant construction, and it carries a couch which can glide down its supports to the level of tht ground and *vice versâ*. From this couch can be drawn one a mattress also furnished with wheels, and on this the wounded man is laid precisely in the posture which the nature of his injury causes him instinctively to assume. The mattress is then returned to the couch, which is made to glide back to its normal position in the conveyance, and so the wounded man is transported smoothly and comfortably to his destination. The conveyance is further provided with a small but sufficient medicine chest, and another receptacle for surgical instruments and disinfectants. A table for operative purposes is another adjunct to the apparatus. It is light enough to be carried by hand, or it can be added without inconvenience to the horse's *impedimenta*. The whole work connected with the "auxilium" can be easily performed by two men. The inventor of this ingenious adjunct in aid of the wounded in war is a layman, the advocate Avellone; its constructor is the engineer Egidio-Ferrante, and its promoter, at whose expense the model has been put together and placed on view, is the Principe Ruffo, Duca d'Artaglia. Signor Avellone has invented another form of "Auxilium"—a litter furnished with a bed, which also descends to the level of the ground, and remounts to its normal position automatically, with smoothness and precision. Both these contributions to the field ambulance service have been patented by their inventor and constructor, and are now exhibited in the establishment of the mechanician, Signor Ferretti, of Rome.

MISADVENTURE WITH OPIUM.

BY a lamentable error three infants lately died at the Firvale Workhouse from the administration of an overdose of opium. The children were respectively aged two weeks, three weeks, and five weeks, and to each a powder containing a fifth of a grain of opium was administered to relieve pain. As these powders were given upon the same evening there was no opportunity of recognising the error until the children were all comatose, and then all restorative efforts failed. It appeared that the powders for the three children had been ordered upon the medicine card of one of the mothers, and that the prescription directed twenty grains of Dover's powder to be divided into ten powders, one to be given at night if required. Clearly no blame could rest with the dispenser, as, under the circumstances, he would have no clue to the age of the patient, and would therefore not have his attention attracted by the dose. At the inquest the medical officer of the workhouse very frankly confessed that he had intended to write ten grains, to be divided into twenty powders, and he assumed the entire responsibility of his oversight. A verdict of "Death from misadventure" was returned, and the jury expressed their gratification at the way in which the doctor had given his evidence. At the time when the prescription was written it was stated that he was suffering acute pain and was partly under the influence of an opiate. The danger which always attends the administration of opium to infants is well illustrated by these three cases. A more cheerful lesson, however, could be drawn from the candour and honesty by which a tedious and painfully-prolonged inquiry was averted.

THE CREMATION SOCIETY.

THE publication of a brief pamphlet of Transactions comes in time to remind us of the continued activity of the Cremation Society. The report contains in a condensed form all necessary information as to the purposes and working plan of this association, as well as the evidence of a satisfactory balance sheet in proof of its solvency. We learn from it that the needful crematory buildings at Woking have now been completed, also that the annual number of cremations, though still very small, is increasing. We may also note that in its pages there appears neither effort nor desire to obtain for the practice of burning the dead any standing but that of an optional and permitted custom, though naturally it is in some sort a missionary effort directed against the older system of

burial. There is a repetition of the measures, including that of necropsy where necessary, by which the Society guards itself against any criminal misuse of its methods, a catalogue of the literature, ancient and modern, which bears on cremation and on burial, and an argumentative segment represented by three ably reasoned speeches delivered in 1884 by Drs. Cameron and Farquharson and Sir L. Playfair, in support of the former practice. Into the details of these, which have been already a frequent theme of discussion, we need not enter at length. They agree in impressing the need of careful and conclusive certification in cases of death, and may, we consider, be taken to establish the position of cremation thus guarded to a place among the allowed and regular customs of funeral procedure.

CHOLERA INTELLIGENCE.

IT is again announced that cholera is assuming activity in Persia. The two towns especially referred to in this connexion are Hamadan, which was some months back a seat of the disease, and Tabriz. The importance attaching to this news is especially significant as regards the latter town, because of its position to the extreme north-east of Persia, not far from that portion of the boundary of Russia which takes a sudden dip to the south between the Black and the Caspian Seas. We are not surprised to learn that, in view of this prevalence and of the uncertainty as to the amount of cholera at the present moment in Mesopotamia, the Russian Government are making local medical inquiry as to the extent to which the disease is prevailing, and that they have forbidden Russian Mussulman subjects from undertaking any pilgrimages into either Persian or Turkish territory.

THE VITALITY OF KOCH'S CHOLERA BACILLUS IN WATER.

PROFESSOR SIRENA of Palermo publishes in *La Riforma Medica* his lectures on Koch's bacillus, embodying some interesting experiments made by himself on its vitality in water of different kinds. He finds that in drinking water (from the Laboratory of Pathological Anatomy) the comma bacillus dies in from five to six days; in spring water in from five to eight days; and in well water in from twenty-four hours to six days. In water which has been distilled and sterilised, or sterilised only, the comma bacillus lives some months, occasionally for some days over three months. In water from the river Oreto it lives from two to three days. On the other hand, in the same water when sterilised it sometimes preserves its vitality for over three months. In sea-water it lives on an average till the fourth day; while in sea-water rendered impure by the discharge of sewage it survives only from twenty-four to forty-eight hours. This observation is not in accordance with the observations of Nicati and Rietsch, who assert that they found the comma bacillus alive after eighty-two days in the harbour of Marseilles. While placing entire confidence in those observers, Professor Sirena thinks he can explain this apparent discrepancy by the fact that if there is a continuous inflow of new matter containing cholera germs, they succeed in obtaining a permanent footing in the given liquid. In the water of the sewers Professor Sirena finds that the comma bacillus remains alive for two or three days. Its duration of life in water and in moist or liquid substances generally depends upon the presence of saprophytes and other microbes which are found therein. The richer these substances are in putrefaction microbes, the sooner do the comma bacilli disappear. It is owing to the fact that in drinking water the comma bacillus lives for several days that the rapid spread of cholera infection is explained, as thus the infection can by simple and direct methods penetrate into the system. The consequences may be imagined when the sewage or the surface drainage percolates into the water owing to defects in the construction of the sewers and drain-pipes. Professor Sirena suggests that in this case, by reason of the continual inflow, the comma bacilli obtain a permanent footing, and especially so because, as is well known, the destruction of Koch's bacillus is effected in liquids in which there is active multiplication of putrefaction germs by saprophytes, while in the soil the reproduction and prejudicial influence of the saprophytes are suppressed; hence it is that very often pure cultures of the comma bacillus are obtained from earth. Owing to the same fact, pools of water stagnating in the open air are naturally more dangerous during a cholera epidemic. Changes in the atmosphere also appear to destroy the comma bacillus. The disappearance of the comma bacillus from a broth culture is frequently shown by the appearance of a greenish tinge in the broth or other liquid employed. The chemical composition of water has no influence on the vitality of the comma bacillus. Finally, Professor Sirena finds that a low temperature renders it torpid, but does not destroy it.

AMERICAN AND BRITISH PHYSICIANS IN VIENNA.

THE recent formation of an Anglo-American Vienna Medical Association should prove a great boon to all English-speaking medical men and students desirous of pursuing their studies in that famous centre. The Association has issued a leaflet calling attention to the great facilities enjoyed by the Vienna student in the centralisation of clinical teaching in one quarter of the city—the General Hospital, with its 2000 beds and numerous departments, the Polyclinic and the Children's Hospital being in close proximity to each other. The organisation of post-graduate instruction is also very complete. The Association, which is under the patronage of the British and American representatives at the Austrian Court, has an office near the General Hospital, where is kept a register of lodgings and pensions; whilst the new-comer may procure an introduction to a member of the committee (which is representative of different branches of medical study), who will give him all the information he requires. No charges are made, but anyone may become a member, the entrance fee being one gulden. The office address is 12, Landesgerichts Strasse.

THE CONTAGIOUS DISEASES ACTS IN HONG-KONG.

A MEMORIAL from the civil medical practitioners in Hong-Kong, protesting against the recent repeal of the Contagious Diseases Acts and urging upon the Government their reapplication, has been numerously signed and sent to the Colonial Secretary for the information of his Excellency the Governor. This memorial points out very forcibly the effects of the repeal of the Acts, and the reasons of the memorialists for hoping that the applicability of the Contagious Diseases Acts to Hong-Kong may be reconsidered. First and foremost comes the increase of disease, which, in the words of the memorialists, "can only be expressed as enormous." This is given as from observations in civil practice only; but the statistical accounts in the medical reports of the Army and Navy bear out these observations completely. Secondly, the increase of disease is considered to be directly connected with the abolition of the Act. This was fully foretold by all acquainted with the nature of the population of Hong-Kong. The many different races and nationalities met with, represented by both sexes, render it improbable that any common spontaneous action would be taken for self-protection, and the result has justified the preconceived

belief. Thirdly, it is shown that the conditions of life in Hong-Kong give to it a special stamp, one which must be borne in mind while considering the applicability to it of the Contagious Diseases Act. Marriage is in many mercantile houses disallowed; the expenses of living are so high as almost to preclude marriage; while the enormous travelling and seafaring population constantly passing through combines with these other causes to favour the presence and growth of prostitution. Fourthly, the memorialists say, "We shall welcome the renewal of the Contagious Diseases Acts in the most rigorous form. We cannot with anything but sorrow see the havoc the abolition of the Contagious Diseases Act is causing to the health of the youth of Hong-Kong, and from the situation of Hong-Kong in the maritime highway we are conscious of the evils being wrought in other towns and countries from disease caught here." Fifthly, it is pointed out that the only persons who would be pecuniarily affected to their hurt would be the procuresses. If those in their charge were compelled to lie up when suffering from illness, such a course would be a great boon to the sufferers themselves. "By enforced rigorous examination by an honest and capable medical man, a check is immediately given to a form of slavery vicious in its idea and practice, but still more vile in that it is the chief cause whereby venereal disease is spread. Still more markedly do the above remarks apply to Chinese women in brothels, who are to a great extent absolute slaves to their mistress even in this colony under British rule. The abolition of compulsory examination withdrew the last chance of a certain degree of protection from their being compelled to practise prostitution whilst suffering from disease." The memorialists add that their medical brethren in Singapore and the Straits Settlements generally have come forward to request, from a hygienic standpoint, that the Contagious Diseases Act be reapplied. They also urge in conclusion that "it seems futile to attempt to legislate for Eastern races in these matters in the same way as for Europeans, and the local knowledge derived from the benefits of the Act should weigh against enforced legislation, which, as the colony has not been practically consulted in the matter, must necessarily be empirical."

IMMEDIATE TORSION OF TEETH.

THERE have been but few cases published of so-called immediate or forcible torsion of teeth to correct malposition. In the current number of the *Dental Record* Mr. Scott Thomson relates one which was successful in a girl fifteen years of age. The teeth of the upper jaw were regular, with the exception of the lateral incisors, which were twisted through the segment of a circle, the lingual surfaces looking towards the central incisors, as is usual in these cases; the teeth were small, and the necks of nearly cylindrical form. As there was not sufficient time during which the patient could be under observation to treat the case by mechanical means, immediate torsion was decided upon. Previously to the operation an impression was taken, and the right lateral sawn off the plaster model and replaced in the desired position in the arch, and a vulcanite frame with a gold cap to fit over this tooth was constructed. Gas being administered, the right lateral was grasped with forceps and rotated, but considerable force had to be used, the tooth becoming elongated and loose. The plate was at once adjusted. Not thinking it advisable to operate on the other side until he saw the result of this, and yet not wishing to lose time, Mr. Scott Thomson commenced to treat the other mechanically. Without going into details, it is sufficient to say that in three weeks the left lateral was only a quarter of a circle out of position, the tooth operated on being firmer, and neither painful nor tender. A second operation easily brought the left lateral into good position, and a retaining plate with caps for both teeth was at once applied. The patient was seen two months later, when the right lateral was still a little long, but firmer, its colour being as good as its neighbours, and it was translucent by electric transillumination, showing that the pulp was living; the left was almost normal in every way. The points which seemed to the writer noteworthy in this case were: first, the age at which the operation was undertaken, it being laid down as a rule that it should only be performed between the ages of eight and ten—that is, before the roots and sockets are fully developed, although in this respect it is not a unique case; and secondly, the difficulty of the first as contrasted with the second torsion, the ease of the latter being doubtless due to the three weeks' mechanical treatment having enlarged the socket. The dangers necessarily incurred in this operation of fracturing the tooth with the forceps, or of rupturing or strangulating the vessels entering the pulp, make it one, Mr. Scott Thomson thinks, not lightly to be entered upon—in fact, only to be performed as a *dernier ressort*.

GERMAN MEDICAL CONGRESS.

THE forthcoming meeting of the International Medical Congress at Berlin will in no way apparently detract from the extent and interest of the proceedings of the ninth meeting of the Congress für innere Medicin, which, however, will be held this year at Vienna (and not at Wiesbaden, as commonly) from April 15th to the 18th. The president is Professor Nothnagel, and set discussions will take place on—(1) the Treatment of Empyema, to be opened by Dr. Immermann (Basle) and Dr. Schede (Hamburg); (2) on Influenza, opened by Dr. Bäumler (Freiburg); and (3) the Treatment of Chronic Nephritis, opened by Professor v. Ziemssen (Munich) and Professor Senator (Berlin). Papers are also announced by—Dr. Unna (Hamburg), on Physiology of the Skin; Dr. Mosler (Greifswald), on Pemphigus; Dr. E. Gans (Carlsbad), on the Gastric Functions in Diabetes Mellitus; Dr. Fürbringer (Berlin), Clinical Contributions to the Forms of Osteitis of Typhoid Origin; Dr. Stadelmann (Dorpat), on the Action of Alkalies upon Tissue Metabolism; Dr. v. Liebig (Reichenhall), on the Mountain Disease; Dr. v. Frey (Leipsic), on the Relation between Forms of Pulse and Valve Closure; Dr. Schott (Nauheim), on Forms of Acute Overstrain of the Heart and their Treatment; Dr. Sternberg (Vienna), on Tendon Reflexes; Dr. H. Curschmann (Leipsic), on the Pathology of Floating Kidney; Dr. G. Cornet (Berlin), on Tuberculosis; besides many other papers.

SUFFOCATED BY FOUL AIR.

IT will readily be believed that the interiors of many, if not all, barge cabins are often far from perfect as to sanitary conditions. Small, ill-ventilated, badly lighted, and in close proximity to a miscellaneous cargo, it is a matter of surprise that their inmates thrive as well as they do. In order to account for this we need not do more than mention two saving conditions. One consists in the purity of the surrounding atmosphere; the other, a more dubious one, in the degree of care taken by the inmates to avoid overcrowding. Removal of or serious interference with either of these needful safeguards is in such a case particularly dangerous. No more striking illustration of the truth of these considerations could be found than that afforded by a sad incident which lately occurred in Millwall Docks. In this case the death of a child from suffocation was, in the absence of any other known cause, attributed to the fact that the already close cabin—her only home—was further incommoded by the gratuitous intrusion of another inmate.

The explanation is rational enough, especially when we reflect upon the respiratory needs of a young child and the never too salubrious air of a London dock. Whether any constitutional cause assisted the influence of an excess of carbonic acid and organic impurity in the air we have no means of deciding. Certain it is that the effect of any prior delicacy must have been much assisted by such marked atmospheric impurity. The case should be studied and its lessons applied in practice by the sanitary officials employed under the Canal Boats Registration Act.

"CHEMICAL VACCINATION" AGAINST YELLOW FEVER.

DRS. CASTANEDA and BORDA of Bogota, with the sanction of the Minister of Public Instruction in Colombia, have been engaged in some experiments upon animals, with the object of discovering whether it is possible, by the injection under the skin of urine from yellow fever patients, and presumably containing some chemical substance due to the action of a specific microbe, to afford protection against the infection of yellow fever. They were led to this research from some experiments upon the "pyocyanic disease" by MM. Charrin and Ruffer, which were communicated to the Paris Biological Society in the early part of 1889, and which showed that the bacillus pyocyaneus, when introduced into the system of rabbits causes the formation of substances which possess the property of producing the same physiological effects as the bacillus itself, and that these bodies can be detected in the urine; and also in view of a paper by Dr. Carmona of Mexico upon yellow fever. Observations were made with yellow fever urine, both sterilised and non-sterilised, and an approximate idea was thus formed of the dose which ought to be safe for a human being. An opportunity of experimenting on a human subject was not long in presenting itself. A young medical man who was about to settle in practice in Cúcuta—a place which, it seems, has a very evil reputation as a perfect hotbed of yellow fever—requested that an attempt might be made to afford him protection by means of "chemical vaccination." Accordingly, 0·02 centigramme (*sic*) of sterilised urine from a yellow fever patient dissolved in a gramme of distilled water was injected into his deltoid; this was followed by thirst, insomnia, headache, conjunctival redness, dilatation of the pupils, pain in the arm and subsequently in the legs, some erythema about the puncture, but by no rise of temperature. On the third day the symptoms had all disappeared. A second inoculation was performed with 0·05 centigramme (*sic*) of the sterilised urine in 0·50 centigramme of diluted spirit, the thigh being selected for the seat of puncture. This was followed by a marked rigor, pain in the head and limbs, fever, thirst, and delirium, with jaundice of the skin and conjunctivæ and albuminuria. In three days all had passed off. Whether the adventurous doctor will find that his "vaccination" renders him proof against yellow fever remains to be seen.

THE CRUELTY OF DISHORNING CATTLE.

THE subject of dishorning is again attracting much attention among Scottish agriculturists, in consequence of the case now pending in the Court of Appeal in Edinburgh. The question as to whether or not this proceeding is in a legal sense "cruel," and therefore punishable, turns, it will be remembered, on the further question whether it is necessary. If cruelty be taken merely to imply the deliberate infliction of pain, there can be no doubt that dishorning *in toto*, or, as we might say, from tip to base, is cruel. It must unquestionably cause pain at the time of the operation, with more or less after suffering. In this respect, any difference between alternative methods, as tipping, half-horning, or total horning, is simply one of degree. In every case the saw has to traverse a sensitive skin layer either continuous with the horny covering, as at its base, or subjacent to it where it sheathes the supporting core and a central axis of highly sensitive bone. Suppuration, trivial when the tip alone is divided, but increasing as the seat of section approaches the skull, inevitably follows. In the course of the trial the veterinary evidence was agreed in asserting that greater suffering was inflicted when a horn was divided at the middle where pus might burrow in the projecting stump, than when the section opened the sinuses at the skull, through which its exit was more easy. Another argument in favour of the latter method was adduced by Professor Williams when he referred to the possibility in this case of dividing the nerve of supply before its distribution in the horn. Against these facts, however, might be placed the close proximity of the skull sinuses to the brain cavity, and the impossibility, by section of the nerve above-mentioned, of controlling sensation in the communicating cranial nerve-supply from other sources. Preliminary section of this trunk should rather be considered the natural anæsthetic in half-horning. The process, however, carried out is essentially painful, and discussions as to the relative severity of its effects are therefore of no great moment. In face of the fact that in many districts where cattle are bred no such measure has been found to be necessary, while isolation or other painless means have sufficed for the restraint of the more savage animals, we cannot but hold that dishorning is a needless, painful, and therefore cruel and illegal remedy.

DENTAL SURGERY "TO THE FORE."

A PARAGRAPH in a local paper informs its readers that at the annual meeting of the —— Hospital a special vote of thanks was enthusiastically accorded to its dental surgeon for the "marvellous skill displayed in his treatment of a case of fracture of both jaws"; and the board congratulated themselves that "dental surgery was to the fore at ——." It was stated that heretofore the sole treatment in such cases was a simple four-tailed bandage, but their dental surgeon had taken casts of the mouth and constructed splints to fit the teeth. It seems astounding that acquaintance with this method, described as it is in all the principal text-books on surgery and dental surgery, which every general student at a London hospital has had opportunities of seeing, and which we may safely say has formed part of the special education of the dentist since the foundation of the Dental Hospital in 1848, should have only now penetrated to a town not 100 miles away.

RECOVERY AFTER A WEEK'S TOTAL ANURIA.

AT the meeting of the Medical Society of the Paris Hospitals on the 14th ult., M. Féréol related a case of a man who, having inherited gout, had on two occasions within the past two months had attacks of suppression of urine lasting twenty-four hours, preceded by lumbar pains and hæmaturia, and followed by the emission of clear non-albuminous urine and a small calculus. A third attack had lasted for eight days, and during that week he only passed a few drops of urine. Then the anuria ceased abruptly, and within twenty-four hours he passed ten litres of watery urine containing 1·4 per cent. of urea, or 170 grammes in the twenty-four hours. At the same time he passed a uric acid calculus the size of a pea and several smaller ones. During the week of anuria he had only slight pain in the right side, and the bladder was empty. But there had been evidence of uræmia, as during the last two days there was slowing of pulse to 52, lowering of temperature (37°) in the rectum, mydriasis, and a "subjective sensation of an ammoniacal odour in the

urine." The treatment consisted in dry cupping to the loins, electrical applications night and morning, inhalations of fifteen litres of oxygen daily, one litre and a half of milk, half a litre of Vichy water, and half a litre of an alkaline water and Beaujon's diuretic potion; on the sixth day a bath lasting fifteen minutes, on the seventh day a purgative, and on the morning of the eighth day thirty centigrammes of caffein. M. Féréol did not think that the suppression was due to there being only one functionally active kidney, but rather that the passage and impaction of the calculus had caused a reflex inhibition of the secretion from the uninvolved organ. The quantity of urine afterwards evacuated was opposed to the first-named hypothesis. Urea must have accumulated in the blood, for the skin was dry and the bowels confined, except for a watery evacuation following the purgative. Sixteen days later the patient was in fair health save for slight lumbar pain and the daily passage of uric-acid gravel. M. Royet mentioned a case, also a gouty subject, eighty years old, in whom a large number of calculi lodged in the ureter without uræmia or anuria; when the calculi were passed he had successive attacks of anuria, none of which exceeded thirty-six hours. M. Hayem thought the case was opposed to the generally accepted view that an adult secretes in three days enough urinary poison to kill him. Roberts has said that myosis is characteristic of uræmia from suppression, not mydriasis, as in M. Féréol's case. If the amount of potash had been estimated in the urine following the anuria, it would have been possible to test the opinion of Voit, Feltz, and Ritter, who say that the toxic quality of urine is proportionate to the richness in potash salts. M. Hayem had always found a large amount of urea excreted after anuria even of short duration.

THE FEVER HOSPITAL.

WE have always commended the Fever Hospital as one of our best charities. It is none the less so that the number of cases last year was somewhat less than usual, owing to a decline in the prevalence of infectious cases. And it is all the more so for one reason—that the rate of mortality was only 1·9 per cent., which is the lowest that has occurred in the history of the hospital. This is a fact of peculiar interest, and we should be glad to know from other institutions if they can give a similarly favourable report for the past year. The rate of mortality of scarlet fever, of which 317 cases were admitted, and 15 remained from last year, was 0·6 per cent. Only two patients died. The hospital has not only the claim of an institution that takes great care of those patients sent in, and gives a good account of them, but of one that removes infected patients from households where infection would in many cases certainly spread.

THOMSEN'S DISEASE.

AT a meeting of the Medical Society a few weeks ago, Fellows had the unusual opportunity of seeing three cases of this rare disease. It was there stated that the recorded cases, which probably represent most of those recently observed, were members of only about fifteen different families. Since then, Renner of Zweibrücken has recorded two more cases. The subjects of the disease were in no case related to one another. The first was a clerk, twenty years of age, whose mother, maternal grandfather, great grandfather, first cousin, and also a more distant relative had suffered from the same complaint. In this case the hands and arms were chiefly affected. He could do his work as a clerk quite well, but experienced stiffness when he commenced work, particularly if the room were not warm. There was some stiffness of the facial, lingual, and ocular muscles. In his case, cold and mental excitement were the most trying conditions. The stiffness was worst after a long rest, as on rising in the morning. The muscles affected were slightly hypertrophied, firm, and rather tender on pressure. When stimulated by the galvanic current there was a slow prolonged contraction. No microscopical examination of the muscular fibres was made. The second patient was a book-keeper, seventeen years old, who had also shown symptoms from early childhood. His maternal grandfather was the only relative who was known to have suffered from the disease. This case showed several contrasts to the preceding. Temperature had no effect on the condition; it was improved by mental activity, and, curiously, by taking alcohol freely. The most prejudicial conditions were bodily fatigue, or any disturbance of the general health. In his case, as in the other, the stiffness was most troublesome after a long rest. There was some hypertrophy of the muscles, but no tenderness.

IMMODERATE MODESTY.

WE can all recognise as natural and becoming a certain reserve especially prevalent among the female sex in regard to even the most ordinary and necessary exposure of the person required for medical diagnosis. Unfortunately this, like every other worthy feeling, is apt to degenerate into a form of mere sentimentalism. In such a case modesty becomes an object of worship possessing rather than possessed by its unhappy devotees. The acme of this condition is reached in India and other Eastern countries, where largely, it is true, from the influence of religion and caste, the mere glance of an unfamiliar eye is carefully avoided, and the recognition of illness, if present, is a matter of guesswork, founded on pulse indications only. Even in the more practical West, however, there are traces of the same excessive self-consciousness. From this cause the indispensable processes of auscultation and percussion are occasionally objected to, sometimes even firmly opposed. Such over-sensitiveness is much to be regretted. It cannot possibly refine the quality of that modesty which it caricatures by its immoderation, and it may interfere to a very serious extent with the success of medical treatment. There can be no bliss for a patient in the ignorance of the responsible medical adviser, yet such obstinate and unreasoning reserve allows no alternative. Any who may be tempted to accept its tyranny should therefore guard themselves with this assurance. Let them also remember that on the side of the practitioner evil is not imagined, and be careful that one of their own richest graces does not die in exotic life because dissevered from its natural connexions with simplicity and common sense.

MEDICAL INSPECTION OF FACTORY CHILDREN.

IF we are to judge from the character and object of a deputation which a few days ago waited on the Home Secretary, a serious objection exists in the cotton trade with regard to the medical inspection of working children. On this occasion representatives both of employers and operatives concurred in requesting the removal of such inspection. Fitness in respect of age they considered was guaranteed by the conditions of School Board superintendence. As to physical ability, they maintained that this could best be determined by a joint agreement between the employer and the parent. We do not think it will be found possible to relax the pressure of law in favour of a freer method of adjustment. As regards age, there seems to be no reason why the decision of the School Board should not be sufficient, provided that the ordinary rules be adhered to, and exemptions be not claimed, as they were but lately in the case of theatres. The question of bodily fitness is not quite so easily answered. Many a boy and girl not dis-

qualified by age continues now at work in trade establishments in spite of evident inability to stand the wear and tear, and evidently with the full approval of parents and masters. It is not clear, indeed, how the fact of incapacity can possibly be proved, however it may or may not be guessed at, without medical supervision. We cannot, therefore, see what advantage to the child can result from a change of the existing law in this particular.

THE OLIVE OIL TREATMENT OF GALL-STONES.

WHEN some years ago some cases of successful evacuation of gall-stones in attacks of biliary colic following the ingestion of large quantities of olive oil were published they were received with some incredulity, which passed into ridicule when it was found that the oil itself was evacuated in the form of saponified pellets. Nevertheless, the practice was not abandoned in some quarters, and from time to time further successes were claimed for this singular form of medication. Recently Dr. Rosenberg has related three such cases (cited in the *Gaz. Hebd.*, No. 8). The first was a patient aged thirty-six, who had suffered from gall-stone for several years and had been treated without result. The gall-bladder was enlarged. The patient during two weeks drank a litre of olive oil with only once vomiting, and at the end of that period the liver and gall-bladder had notably diminished in volume. She had remained free from colic eighteen months after the treatment. The second case was that of a workwoman aged thirty-seven, who was attacked with biliary colic. There was slight icterus, which always increased at the menstrual periods. The liver reached for three fingers' breadths below the ribs. She was given 200 grammes of the oil mixed with a little menthol and the yelk of egg. Next day the pains had disappeared and the liver had lessened in size. The jaundice and pruritus persisted; so another similar dose was administered, when these signs also disappeared. For several days after she passed biliary calculi. The like result was obtained in a third case, aged thirty-eight, after nine years' suffering from attacks of hepatic colic unrelieved by many "cures" at Marienbad and Carlsbad, although on each occasion she had passed some small calculi. Rosenberg states that of twenty-one cases treated on this plan there are only two in which it failed. He found by experiment that large doses of olive oil increase considerably the flow of bile and diminish its consistence. And he mentions, on the authority of Cantani, that in Italy, where olive oil is taken largely as an article of diet, gall-stone is less frequent than in other countries. Lastly, Rosenberg would not advise recourse to this remedy until other methods had been tried and failed; but, as he truly says, it may well be prescribed before advising recourse to cholecystotomy.

THE POWERS OF CORONERS.

WE have just received a short account of an inquest held at Litlington, Cambridgeshire, by the county coroner, Mr. Palmer, a solicitor, who appears to us to have been much too liberal in his remarks upon the action of a member of our profession, Mr. Balding of Royston, who is a magistrate of the same county, and himself a coroner of an adjoining county. The inquiry arose upon the deaths of two children, who had been killed by the father when, no doubt, insane. Mr. Balding, who had been telegraphed for by the medical attendant of the unfortunate lunatic, in order to secure his prompt removal to an asylum, arrived two hours after the occurrence of the tragedy. Mr. Balding, acting as a magistrate, decided on sending the man to an asylum with as little delay as possible. Before the necessary forms could be completed the police appeared upon the scene, and were recommended by Mr. Balding not to take the man into custody. This, we believe, was not contrary to law, and certainly in accordance with the dictates of humanity, as all who have any experience of lunatics confined in police cells must at once admit. Few of our readers are aware of the technical difficulties in carrying out the law bearing on such cases with the promptitude which, from a medical point of view, is obviously required. At the inquest held on the bodies of the two children two days subsequently, the coroner, so far as we are able to judge, seems to have stepped beyond his province in severely criticising the action of Mr. Balding, which had nothing whatever to do with the cause of death of either child. It is impossible that it could have been so, as Mr. Balding only arrived at the scene of the tragedy two hours after the crime had been committed. We fail to see on what grounds the coroner was justified in even alluding to this, nor can we understand how this could be sufficiently material to the inquiry to necessitate it being recorded on the depositions in order that it might, as the coroner said, come under the notice of the judge at the assizes. This case, however, raises the very serious question of the grave disadvantages under which criminal lunatics are placed when detained by the police, and who, when once incarcerated, must there remain until removed by special order of the Secretary of State.

A CASE OF ARSENICAL POISONING.

A CASE is recorded by Kovacs in the *Wiener Med. Wochensch.* of arsenical poisoning due to a single large dose of arsenic, which presents many points of interest. The patient, a man forty years of age, took no less than two drachms and a half of white arsenic. In about an hour the usual symptoms of severe gastro-intestinal irritation followed, which were subdued by appropriate treatment. A week later, however, symptoms of affection of the peripheral nerves developed. There were first œdema and coldness of both lower limbs, and a week later some anæsthesia of the feet, lightning pains, and unsteady gait, and anæsthesia began to make its appearance in the upper extremities, beginning in the finger-tips. The muscles of both upper and lower limbs wasted and became extremely soft, and fibrillary twitchings were frequent. The knee-jerks and superficial reflexes were absent. After four weeks' treatment the ataxy passed off and the muscles regained their former bulk. The last symptoms to disappear were the pains and paræsthesia. In some other cases observed, the "latent period" between the time of taking the arsenic and the development of the nervous symptoms has been even longer, as much as four weeks in a case recorded by Seeligmüller; and these cases are a warning not to give an absolutely favourable prognosis in cases of acute arsenical poisoning, even when the acute symptoms have entirely passed away.

A BABY-FARMING SOCIETY.

IT may well be doubted if the annals of crime in any country can show anything so revolting as the recent exposures with regard to baby-farming in Warsaw. For a period which can only be guessed at a regular system of child murder appears to have been carried on in the ancient capital of Poland. One person alone of several implicated has admitted participation in the criminal death of fifty children, while the operations of the band and its agents are said to have extended over the whole of Russia. As regards the means by which the long series of crimes was accomplished, or the inducements to their commission, we have no certain information. So far no such ghastly catalogue has marked the history of infant life in this country, though recent experience forbids the too sanguine hope that vigilance and legislation have abolished the practice of baby-farming. On the contrary, there is good ground for believing that it still maintains a somewhat

active though concealed existence. There can be no question that it is commonly inspired by a deliberate motive—such, for example, as the desire to possess the sum guaranteed by some infants' insurance society, or the premium paid by the parent of some inconvenient child. The former inducement might, without injustice to the provident thrift of the working classes, be removed by providing that the execution of funeral arrangements, and not the payment of money, should constitute the return legally due to the insured. The latter can only be met and combated by the watchful energy of coroners, medical men, and sanitary officers in dealing with cases of this kind. Improper feeding—the method usually adopted in this form of manslaughter—should at once attract attention in the case of a nurse child, and the chances of detection will depend largely upon the vigilance of the visiting practitioner in regard to this apparently small matter. The Legislature should here also go a step further than it has hitherto gone, and require the registration not only of two or more children, but even of one child when in the "care" of a so-called nurse.

UNUSUAL FORM OF MYXŒDEMA.

DR. JÜRGENS, in a paper read at the last meeting of the Livonian Medical Society, mentioned a case of myxœdema which was under his care. The patient was a woman aged forty-one, who had been chlorotic for three years, and had at one time suffered from metrorrhagia. She was dull and heavy, with impaired digestion and irregularity of bowels and catamenia. Her face began to swell unsymmetrically, and the forehead became dry, rough, and wrinkled. The skin had a waxy appearance, and was thick and firm. The mucous membrane of the mouth and pharynx was pale, and looked as if covered with white varnish. Some twelve ounces of frothy alkaline sputum were expectorated daily; it was viscid, and coagulated by acetic acid; the addition of alcohol threw down minute fibres, which were insoluble in water. There were swellings under each mamma. A small piece of skin was excised, and on the cut surface a number of viscid globules were seen. The wound was covered with mucus, and was slow to heal. There were foul-smelling sweats, rigors, and a painful swelling of one knee, due to the very rapid deposit of mucin round the joint. This was reduced by massage. The heart's action was rapid, and there was a mitral systolic bruit. The treatment adopted included a liberal meat diet and the ethereal tincture of iron, with adonis vernalis and bromide of potassium when there was irritability of the nervous system, upon which a satisfactory effect appeared to be produced. Notwithstanding every care, however, the symptoms continued to increase, mucin deposits occurred in other joints, and persistent glycosuria and mental hallucinations finally supervened.

THE NEED OF PUBLICATION OF CHLOROFORM FATALITIES.

M. MARCEL BAUDOUIN, writing in *Le Progrès Médical* (Feb. 22nd), reproaches his countrymen for not recording the cases of fatal administration of chloroform which come under their cognisance. He says that it is most pressing that we should get out of the "clinical chaos" in which we are at present respecting anæsthetics, and the only way to effect this is to record all the misadventures. The example of the American and English faculties in this matter is, he says, worthy of being followed. "In fact, the English are much more courageous on this point than we are"—a statement which he supports by referring to a table of deaths from chloroform published by Duret in 1880, which included statistics for fifteen years, all of them (135 cases) being gathered from English or American sources, with the exception of twelve from the practice of French surgeons, and five of these hitherto unpublished. Duret said that from 1847 to 1880 there had been only 241 deaths from chloroform in the whole world; but it can hardly be doubted, says M. Baudouin, that during this period there must have been more than 1000. He urges, therefore, that the publication of these fatalities should be made in the medical journals (and there is room enough, he adds, in the enormous number of columns supplied weekly by the French medical press), a course recommended by Duret ten years ago, but which seems to have fallen upon deaf ears. It would seem (says M. Baudouin) that in France such "indiscretions" are not permitted; but then "we are more advanced nowadays." Should this step be taken, it will be necessary to record every fact bearing on the case and its issue, and especially as to the minutest detail of the mode of administration of the anæsthetic. M. Dastre, whose work on Anæsthetics has given rise to this appeal, complains, and with justice, of the meagreness with which these fatalities are often reported.

THE GOVERNMENT AND THE USE OF TUBERCULOUS MEAT.

IN a report which Dr. Spottiswoode Cameron has recently addressed to the Corporation of Leeds he refers to the need for accurate and trustworthy knowledge with respect to the use as an article of food of the flesh of animals suffering from tubercle, and he states that he has been in communication with Dr. Buchanan, the Medical Officer of the Local Government Board, on the subject, but that the answer he has received is chiefly to the effect that at present Dr. Buchanan does not see his way to help. Reading this answer between the lines, we cannot but feel certain that the question at issue is the old one of the respective values attaching to the lives of men and of beasts in the eyes of those who hold the purse-strings of the nation. A short time ago it was alleged that agriculturists were incurring serious loss because of tubercle amongst their beasts, and forthwith a Departmental Committee on the subject was appointed by the Government to take evidence and to advise on the subject for the whole of the United Kingdom. Allegations quite as decided have been made by experts to the effect that there are conditions when the use of the meat and of the milk of tuberculous cattle tends to produce tubercle in the human subject. But deadly as this disease is to the inhabitants of the British isles, we not only hear of no Government inquiry into the subject, but in Dr. Buchanan's reply to the Leeds request, we get a significant hint as to the absence of any intention to make investigation of this important subject.

THE PRESIDENCY OF THE MEDICO-CHIRURGICAL SOCIETY.

A GOOD deal of interest and some feeling are being shown in regard to the election of President to the Medico-Chirurgical Society, which is to take place on Saturday next. The Council, it is said, propose to elect Mr. Timothy Holmes—a Fellow with undoubtedly high personal claims to the consideration of the Council. But it is observed that to reach Mr. Holmes for this honour ten of his seniors have been passed over. The names of the senior surgical Fellows are—(1) Mr. John T. Birkett, (2) Mr. J. A. Kingdon, (3) Mr. P. Y. Gowlland, (4) Mr. John Wood, (5) Mr. B. E. Brodhurst, (6) Mr. W. Adams, (7) Sir Henry Thompson, (8) Mr. Brudenell Carter, (9) Sir T. Spencer Wells, (10) Mr. Jonathan Hutchinson. The Council can scarcely expect to escape criticism for passing over all these names, or to carry

the election without indications of dissent which it is a pity to provoke, especially at the moment of a new departure in the history of the Society.

THE SUSSEX COUNTY HOSPITAL.

WE are glad to note that at the annual meeting of the Court of Governors of the Sussex County Hospital on Feb. 19th, it was resolved to place the election of members of the medical staff in the hands of an election committee consisting of the chairman, vice-chairman, and the honorary officers *ex officio*, and of thirty-three elected members, of whom one-third should retire annually, but be eligible for re-election. By this plan the evils of canvassing and proxy voting will be abolished, and the best candidate secured.

"UNQUALIFIED DOCTORS."

THOUGH unqualified men still continue to appear as the only attendants on cases which become the subject of inquiry by coroners, their want of status is very candidly exposed by these officials. Coroner Wyatt at such an inquest in Rotherhithe lately said: "Unqualified men know nothing about these cases. It is a shame that they should go about calling themselves doctors. A butcher or baker would do equally well."

THE ANTI-VACCINATIONISTS OF LEICESTER AND THE ROYAL COMMISSION.

MR. BIGGS has been cheering his anti-vaccination constituents by glowing accounts of their prospects from the Commission. According to Mr. Biggs, the case for vaccination is crumbling away under the process of examination. We are content to wait, and would advise our non-vaccinating friends to do the same.

NEW SYDENHAM SOCIETY.

SUBSCRIBERS to the New Sydenham Society will be glad to learn that the council has been able to see its way to include the second volume of Henoch on Diseases of Children in the series for 1889. This volume completes the work, and is accompanied by an index. This is the fifth volume issued for that year. The first volume for the year 1890—namely, "Flügge's Treatise on Micro-parasites, or the Etiology of Infective Diseases"—will be issued at the same time. This work, which is a volume of more than 800 pages, and is copiously illustrated with woodcuts, has been translated by Mr. Watson Cheyne.

DEATH OF DR. DAVID PAGE.

THE Medical Department of the Local Government Board has lost one of its most effective members by the death, at a comparatively early age, of Dr. Page. We hope next week to give some notice of his life and work. We shall only meantime say that his death is a source of acute grief to those who knew him and his work best.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.

THE deaths of the following distinguished members of the medical profession abroad have been announced:—

Dr. Walter, assistant in the Jena Zoological Institute, from malarial fever contracted during his Asiatic travels.—Professor Schaerer, director of the Lunatic Asylum at Waldau in Switzerland.—Dr. Voigt, formerly Professor of Anatomy in Vienna.—Dr. Rossiand, assistant in the Surgical Clinic, Berne.

FOREIGN UNIVERSITY INTELLIGENCE.

Clausenburg.—Dr. Stephen Apathy has been appointed to the Professorship of Zoology and Comparative Anatomy.

Halle.—The late Professor Volkmann's chair is still unfilled, those to whom it has been offered having all declined to accept it.

Munich.—Dr. Prausnitz has qualified as *privat docent* in Hygiene.

Vienna.—Professor Brücke is about to retire, being in his seventy-second year.

Würzburg.—Dr. W. Kirchner has been appointed to succeed the late Professor V. Tröltsch in the chair of Otology.

AT the meeting of the Metropolitan Asylums Board on Saturday last Mr. F. N. Hume, assistant medical officer of the South-Eastern Hospital, was unanimously re-elected medical superintendent of the Northern Hospital, with liberty to return to the South-Eastern Hospital if the Northern Hospital should be closed. Mr. Hume takes the place of Mr. Bruce, who is transferred to the Western Hospital, vice Mr. Sweeting, who, as we have already announced, has become a Government medical inspector.

THE Australian Postmaster-General recently suggested that mails arriving from Europe should be fumigated, with a view to prevent the introduction of any infectious disease, especially influenza. The Boards of Health for Victoria and South Australia rejected the idea as being of no value, but the Queensland authorities have instructed their officers at Watson's Bay and Newcastle to inspect all vessels from European ports in its stead.

WE are informed by the secretary of the Association of Fellows of the Royal College of Surgeons of England that a committee meeting was held on Feb. 21st, 1890, at which a report of the origin, objects, and proceedings of the association was received and adopted. This report will shortly be issued to all the Fellows of the College.

THE Royal Commission on Vaccination held another long sitting on Wednesday. Lord Herschell presided, and most of the other members were present. Alfred Russel Wallace, LL.D., was examined at great length as to his experience of vaccination.

THE death of Mr. Alderman David Henry Stone, treasurer of St. Thomas's Hospital, and chairman of the Gaols Committee, took place on Tuesday last at his official residence at the hospital. Mr. Stone was born in 1812, and occupied the civic chair in 1875.

THE annual meeting of the American Medical Association will be held this year at Nashville, on May 20th and following days.

MR. LAWSON TAIT has been appointed Bailiff of the Trustees and President of the Council of Mason College, Birmingham.

DR. OCANA, who treated the little King of Spain during his recent illness, has been raised to the rank of a Grandee of Spain.

THE HYDERABAD CHLOROFORM COMMISSIONS.

THE REPORT OF THE SECOND COMMISSION.

APPENDIX C.

THIS Appendix (C) contains in a tabular form the details of experiments on animals conducted by the committee without recording apparatus, and forms in reality a continuation of the experiments made by the first Commission, already printed in Appendix A. In these experiments the anæsthetic was administered in various ways and in different forms of dilution, with the object of ascertaining, first of all, whether the heart would stop before the respiration; secondly, how far artificial respiration could be made available for restoring the animal after natural respiration had ceased; and, thirdly, the influence which various concomitant conditions would have upon the rapidity with which respiration would cease under chloroform, the length of time which elapsed between the cessation of respiration and the stoppage of the heart, and upon the comparative ease or difficulty with which life could be restored by artificial respiration.

In Experiments 1 to 9 the chloroform was administered very freely, and in Experiments 567 to 588 it was given very gradually and in small doses. In order to avoid the struggling which occurred when the animal was held down, another means of administering the chloroform was adopted. The animal was simply lifted into a box 42½ in. long, 19 in. broad, and 17½ in. in depth. This was done without causing any struggling, and the lid of the box was immediately put on, the animal remaining all the time perfectly quiet. Along the edges of the box pieces of spongio-piline were nailed, so that when the lid was fitted on the chamber was air-tight. In the lid was an oblong opening which could be covered at will, either with a piece of board or with glass. Through this opening the chloroform was introduced by pouring it upon a piece of blotting-paper, and either dropping it into the box or allowing it to hang down through the opening in the lid. By using a glass covering it was easy to watch the movements of the animal, and to ascertain when the anæsthetic action had been induced. In order to discover the effect of agitation and struggling when the chloroform was given in a box, and thus to see whether confinement in a close atmosphere had modified the effect of the chloroform, the dog was excited by putting crackers into the box in Experiments 14 and 15. In Experiments 19 and 20 the effect of very large doses of chloroform administered at once was observed, and in 21, 26, 27, and 28 the same experiment was repeated with only half the dose of chloroform. In Experiments 373 to 382 the effect of chloroform upon monkeys was tested in a similar way, the animals being placed in a glass box containing one cubic foot of air, but the quantity of chloroform introduced into the box was only measured in some experiments, and not in all. In 21, 23, and 24 the chloroform was given with Junker's inhaler. In Experiments 186 to 196 large doses of chloroform were administered on a cloth cap inhaler, the anæsthetic being pushed until death occurred. In Experiments 247 to 261 the dogs were simply chloroformed as they were obtained from the bazaars, without any special preparation.

As one source of danger in operations appears to be exhaustion of the patient by prolonged fasting before the commencement of the operation, a series of experiments was instituted in order to discover what effect fasting or feeding would have upon the dogs subsequently chloroformed, and various kinds of food were employed, as well as pure stimulants like alcohol and aromatic spirit of ammonia, and substances like Liebig's extract, which lie on the borderline between food and stimulants, although they probably belong rather to the latter class. In Experiments 198 to 205 Liebig's extract was given a quarter of an hour before the inhalation was commenced, and in 216 to 220 it was given two hours before the administration of the chloroform. In Experiments 206 to 210 the dogs were kept fasting for twenty-four hours, and in 226 to 246 they were kept from thirteen or fourteen to nineteen or twenty hours without food. In Experiments 221 to 225 the dogs were fed with a meal of flesh, and in 360 to 370 with gruel, from one hour and a half to three hours before the chloroform was administered. The effect of stimulants—spirits, coffee, and ammonia—given before the administration of chloroform was tested in Experiments 211 to 215, 383 to 387, and 490 to 495.

A second series of experiments was performed for the purpose of ascertaining the comparative effects of large or small quantities of chloroform when given with a definite quantity of air, and for this purpose the animals were introduced into a tin box containing eight cubic feet of air, and a measured quantity of chloroform was allowed to evaporate in the box before the animal was introduced, the air thus containing a definite proportion of chloroform vapour, which, however, would vary somewhat during the experiment, owing to the absorption of chloroform into the blood and tissues of the animal. In Experiments 262 to 266 and in 282 to 286, two ounces of chloroform were diffused in eight cubic feet of air; in 267 to 271 and 287 to 291 one ounce was given; and in 272 to 276 and 292 to 296 half an ounce only was used. For comparison with these, two ounces of chloroform were administered at once on an inhaler in 277 to 281, and the effects of a limited quantity of chloroform with a free circulation of air were shown by 349 to 359. The chloroform was introduced into a bottle provided with valves, a full description of which is given in Appendix B. In Experiments 467 and 468 air containing a definite quantity of chloroform vapour was administered by artificial respiration.

In many operations, especially those about the face or head, it is of great convenience to administer morphine subcutaneously some time before an operation at which chloroform is to be given. With a view of ascertaining the effect of morphine used in this way, a third series of experiments was performed, consisting of Experiments 297 to 306. As atropine has been recommended by Schäfer and others to lessen the danger of death during chloroform narcosis, Experiments 542 to 553 were made, and as strychnine is one of the most powerful cardiac stimulants, as well as being a powerful respiratory stimulant, Experiments 530 to 541 were undertaken. The action of cocaine was tested in a similar way in 518 to 529. In 327 to 336 morphine and atropine were both injected before the chloroform was administered; in 312 to 326 morphine and strychnine were employed; and in 337 to 348 morphine, atropine, and strychnine were administered before the chloroform. In Experiments 499 to 504 the monkeys were chloroformed to death in an upright position, such as would be maintained in a dentist's chair. Section V. contains experiments on the efficacy of artificial respiration under various conditions, and Section VI. experiments on the after-effects of chloroform and ether.

EXPERIMENTS CONDUCTED BY COMMITTEE.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889. Oct. 23	1	Full-grown well-nourished pariah.	H. M. S. 2 51 0	H. M. S. 0 2 0	H. M. S. 0 3 20	H. M. S. 0 3 55	H. M. S. 0 3 55	H. M. S. 2 54 55	H. M. S. 0 3 0	The chloroform administered freely on a cloth cap with a sponge inside. The respiration was in mere gasps for some time before its final cessation. The dog continued to yelp for some time after the cornea became insensible. Artificial respiration for three minutes failed to restore the pulse or respiration. P. M.: Lungs healthy. Pulmonary veins much distended. Right auricle and ventricle full of blood. Left side empty. A leather muzzle was used to control the dog, which probably caused some constriction of the neck. Temperature of room 25·5° cent.
Do.	2	Ditto.	3 9 25	0 2 0	0 3 10	0 3 30	0 3 45	Not employed.	..	Chloroform administered as in No. 1. Leather muzzle as above. P. M.: Conditions the same as in No. 1.
Do.	3	Ditto.	3 26 0	0 0 43	0 1 50	0 3 23	0 3 45	Do.	..	Chloroform as in No. 1. In place of the leather muzzle a simple loop of rope was fastened round the jaws and tied behind the ears until the dog became quiet, so that no pressure was exercised upon the neck. The dog continued to yelp and groan for 47 seconds after the cornea became insensible. P. M.: Both sides of the heart full of blood. Lungs normal.
Do.	4	Ditto.	32 44 40	0 1 3	0 1 28	0 1 50	0 2 10	3 49 10	0 2 0	Chloroformed freely, as in No. 1. The dog breathed more deeply than his predecessors. P. M.: Right side of the heart full of blood; left side moderately so. Lungs normal.
Do.	5	Ditto.	4 9 40	0 1 40	0 3 35	0 4 0	0 7 0	4 17 0	0 1 15	Chloroform in ½-drachm doses on the same cap, five doses in all. Inhaled freely. Yelped a little after cornea became insensible. P. M.: Lungs healthy; right ventricle distended with venous blood; left ventricle half full of bright arterial blood.
Do.	6	Ditto.	4 24 10	0 1 10	0 5 13	0 5 55	0 7 5	Not employed.	..	Chloroform in ½-drachm doses, as in No. 5—five doses in all. Continued to yelp loudly after cornea became insensible. P. M.: Conditions as in No. 5.
Do.	7	Full-grown well-nourished pariah, two hours after a full meal.	9 45 0	0 0 50	0 2 55	0 4 15	0 6 50	Do.	..	Chloroformed freely in the ordinary hospital way. No muzzle used. Continued yelping 1 m. 20 s. after cornea became insensible. One heaving respiration occurred about 30 s. after the respiration was considered to have ceased. Veins of the brain full. Structure normal. Right auricle and ventricle distended. Left side almost empty.
Do.	8	Ditto.	10 8 0	0 0 40	0 1 10	0 3 30	0 5 7	Do.	..	Chloroformed fully. No muzzle used. Respiration was thought to have ceased at 1 m. 10 s., but subsequently returned and continued until 3 m. 20 s., as noted in the table. The pulse similarly appeared to have ceased at 1 m. 50 s., but returned and continued until 3 m. 50 s. after the commencement of inhalation. No yelping or groaning. Both ventricles moderately firmly contracted. Right auricle distended.
Do.	9	Ditto.	10 17 35	0 1 53	0 3 30	0 4 10	0 5 40	Do.	..	Chloroformed fully. No muzzle used. Respiration stopped after 2 m. 40 s., after which there were only three gasps, and it finally ceased at 3 m. 30 s., as noted in the table. Pulse stopped after 3 m. 20 s., but returned and continued for 4 m. 10 s., as noted. Groaning continued for 2 m. 35 s.
Do.	10	Full-grown pariah (light meal only at 7.30).	10 9 40	0 5 25	0 9 50	0 11 25	0 13 53	Do.	..	Dog enclosed in a box 42½ in. by 19 in. by 17¼ in. (8 cubic feet contents), which was opened occasionally in order to examine the dog, and chloroform given fully on a piece of blotting-paper placed under the lid. No struggling or excitement. Removed from the box after 6 m., and chloroform administered on a cap as before. Respiration ceased after 6 m. 15 s., but feeble occasional movements continued without probably any entrance of air into the chest for 9 m. 50 s. Heart as in previous cases. Blood in left ventricle rather venous in character.
Do.	11	Ditto, just caught.	10 48 50	0 7 0	0 9 42	0 16 30	0 18 0	11 7 15	0 2 0	Dog enclosed in the same box and chloroform administered as in No. 10. No excitement, the dog lying down quietly after about 4 m. Removed from the box after 8 m. 30 s. and

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	chloroform administered on a cap as before; but the sponge was not pushed up close to nose, so that the vapour was not so concentrated as in the previous cases, and the last air which entered the lungs therefore contained a less proportion of chloroform. Both ventricles full, but not distended. The blood in the right ventricle dark; that in the left ventricle arterial, but not bright red.
Oct. 23	12	Full-grown pariah, rather thin.	11 17 50	0 4 10	0 5 53	0 12 35	0 16 0	11 33 40	0 2 0	Dog in box as before, but with a small opening covered with a glass lid, in order to observe movements. No excitement. Removed from box at 4 m. 30 s., and chloroform administered on a cap as in No. 11. Chest opened after 14 m., so that heart's movements could be seen. Only flickering contraction for last two minutes, after which the trachea opened and lungs inflated by means of bellows, but no restoration of heart's movements occurred, although it was stimulated by pressure.
Do.	13	Full-grown pariah brought in 3 hours before; no food since arrival.	11 40 50	0 4 28	0 5 50	0 7 7	0 8 30	11 48 40	0 1 50	In box as before. No excitement. Dog fell down in box at 11 h. 44 m. 8 s. Removed after 4 m. 30 s., and chloroform administered as before. Chest opened at 11 h. 48 m. 40 s. The heart only feebly flickering for half a minute.
Do.	14	Full-grown but rather small-sized pariah; dog rather thin; no food.	2 45 50	0 4 55	0 10 47	0 12 27	0 12 54	..	..	The dog in the same box, but excited by putting crackers inside the box and hammering it outside. Chloroform as before freely on blotting-paper inside the box. Dog fell down after 3 m. 45 s. Removed from the box after 5 m. 45 s., and chloroform administered on a cap as before. Respiration very slow after 8 minutes. A few flickering movements of chest wall after respiration had practically ceased. Heart as in No. 11. Blood rather venous on left side.
Do.	15	Large-sized full-grown pariah; not fed recently.	3 2 25	0 4 15	0 8 10	9 9 32	0 10 19	..	..	The dog in box and excited by crackers as in No. 14. Dog fell down after 1 m. 50 s., but continued to struggle. Dog removed from box after 4 m. 50 s. and chloroform continued as before. Breathing very shallow after 7 m., hardly more than flickering movement of the chest wall. Post-mortem condition the same.
Oct. 24	16	Small-sized but fully grown pariah just brought in.	3 17 50	0 6 55	0 15 50	0 17 40	0 18 11	..	..	Dog in the same box, only without agitation. Chloroformed as in previous cases. Removed from the box after 7 m. 5 s., and chloroform continued as before. Evulsion of the nails performed after 9 m. 17 s., and while respiration continued. No apparent effect on the pulse in femoral artery. Internal rectus muscle cut through after 13 m. 40 s. Pulse did not intermit during operation, but was felt to be hard and cordy. This condition had not been previously observed. Chloroform temporarily interrupted during operation. Pulse became feeble and intermittent after 15 m. 5 s. A very little almost venous blood in the left ventricle. Right side full. Liver very much congested; the large veins of the splanchnic area engorged, but venous radicles almost empty.
Oct. 25	17	Full-grown well-nourished dog, fed with beef-tea about a quarter of an hour previously.	9 39 15	0 4 15	0 6 5	0 7 12	0 7 50	..	9 34 5	In the same box, but this had been made more air-tight. Chloroform fully on blotting-paper. No excitement, the dog lying down after 3 m. 50 s. and rolling about from side to side. Convulsed violently at 4 m. Taken out of the box at 4 m. 45 s. and chloroformed with the ordinary cap. Respiratory movements and heart sounds both feeble at that time. Post mortem: Heart structure normal.
Do.	18	Full-grown pariah.	9 49 20	0 1 22	0 2 30	0 4 0	0 4 22	..	..	Chloroformed on the table with cap in the ordinary way. Pulse only flickering after 3 m. 29 s. No excitement and very little struggling. Heart healthy; both sides moderately full: that on left side rather venous in colour.
Do.	19	Full-grown well-nourished pariah.	9 57 27	Not observed.	0 4 38	0 5 33	0 7 10	..	..	In the box with 2 oz. chloroform on a towel put into the box with the dog. Dog fell down after 2 m. 40 s. and struggled violently. Respiration shallow after 3 m. 30 s. Taken out of box when pulse stopped. Heart healthy, and in the same condition as the last. Liver very congested.

Date.	No.	Description of dog.	Time at which inhalation commenced	Cornea became insensible after—	Respiration ceased after	Pulse stopped after—	Heart ceased beating after	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Oct. 25.	20	Full-sized well-nourished dog.	10 10 55	Not observed.	0 2 52	0 4 35	0 4 45	..	..	Two ounces of chloroform introduced on blotting-paper into the box and allowed to completely evaporate before the dog was put in. Sat down after 1 m. Fell down after 2 m. Taken out after 3 m. 45 s., as the pulse had stopped, but it returned and flickered for nearly another minute. Heart as before; liver very congested; veins of the splanchnic, including the venous radicles, engorged.
Do.	21	Small badly-nourished pariah.	10 27 25	Ditto.	..	..	..	..	..	Box prepared as in the last, but with only one ounce of chloroform. Dog introduced when the blotting-paper appeared dry as in No. 20. Fell down after 1 m. 40 s. Struggling after 2 m. Breathing laboured after 2 m. 30 s.; shallow after 3 m. 35 s. Jerking of the thoracic wall merely at 5 m., but afterwards breathing more regularly and deeply, lying quietly at the bottom of the box. Box opened at 11.46 freely aired, another ounce of chloroform placed inside on blotting paper. Cornea now quite insensible. When respiration had ceased, the dog was removed from the box; no pulse could be felt or heart sound heard.
Do.	22	Full-sized fairly-nourished pariah.	10 50 33	0 12 25	0 19 24	0 21 30	0 22 15	..	..	Chloroformed with Junker's inhaler. No muzzle. The ball being compressed 20 times in a minute. Struggled a little at first. Cornea becoming insensible very gradually. Breathing ceased at 12 m. 38 s., but returned at 14 m. 30 s., the pulse during this interval being very rapid. Respiration then very shallow, but continued until 19 m. 24 s. after the commencement of inhalation. Four drachms of chloroform used. Heart, liver, and venous radicles as in No. 20.
Do.	23	Half-breed spaniel pariah, badly nourished.	11 27 33	0 2 32	0 5 18	Not noted exactly.	0 8 5	..	..	Chloroformed with Junker at the rate of 40 squeezes per minute. The pulse stopped about ½ m. after the respiration; exact time not noted. Two drachms of chloroform used. Left ventricle empty. Liver and venous radicles as in No. 20.
Do.	24	Half-breed black and-tan pariah, well-nourished.	11 47 20	0 1 27	0 7 32	0 7 49	0 9 0	..	..	Chloroformed with Junker, squeezing rapidly so as to keep the second ball distended. Respiration stopped at 4 m. 26 s.; but, the chloroform being discontinued to listen to heart, the respiration returned, and finally ceased after 7 m. 32 s. Left side of heart almost empty and otherwise as in No. 23. 2½ drachms of chloroform used.
Do.	25	Full-sized, strong pariah.	2 25 10	..	..	..	..	..	..	Manometer experiment.
Oct. 26	26	Full-sized pariah (brown), fairly nourished	7 44 0	..	8 32 1	8 34 0	No cessation.	Employed, but not timed.		Box, 8 feet cubic contents, prepared as in No. 21, with 8 drachms of chloroform fully evaporated before the dog was put in. Transferred at 8 h. 19 m. 30 s. into another box of 9½ cubic feet contents prepared in the same way, before the dog was put into it, with 9½ drachms of chloroform, so that the proportion of vapour was equal in the two boxes. Removed from box at 8 h. 32 m. Heart beating very fast, but no pulse could be felt. Breathing returned in a few minutes, but stopped again, and was only fully restored after artificial respiration had been employed. Dog fell down at 7 h. 53 m. Box changed at 8 h. 19 m. 30 s.
Do.	27	Same dog.	8 52 0	..	9 29 0	9 31 30	9 31 50	Not employed.		Repetition of the last experiment with the same dog, which was still drunk from the previous experiment. Recovered. Respiration returned about 1 m. after the heart was supposed to have ceased beating. Respiration again stopped, 9 h. 35 m. 30 s. Breathing again 9 h. 37 m. 30 s. During this time the pulse had not stopped. Cornea sensible at 9 h. 38 m. 30 s. Respiration 34 per minute, and the dog fully recovered eventually. Was lying down at the commencement. Box changed at 9 h. 22 m.
Do.	28	Same dog.	10 44 0	..	11 35 0	11 35 0	..	..	..	Same boxes as in the last, with 8 drachms and 9½ drachms of chloroform respectively. Respiration gasping at 10 m. 44 s.; afterwards continuously, very feeble, but regularly. On respiration ceasing at 11 h. 35 m. he was taken out of the box; the pulse could not be felt, and the heart, which was beating very slowly, was thought to have stopped. He recovered, however, without artificial respiration, and commenced to breathe spontaneously at 11 h. 41 m. Dog fell down in box at 10 h. 47 m. 30 s. Box opened at 11 h. 23 m. 30 s.

* Nos. 29 to 185 were manometer experiments.

EXPERIMENTS CONDUCTED BY SUBCOMMITTEE.

I. (*a*).—*Large doses of chloroform given till death occurred, the chloroform being administered on a cloth cap inhaler. Dogs taken without any preparation.*

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Oct. 24.	186	Full-grown pariah, healthy.	2 18 30	0 1 50	0 3 10	0 3 50	0 4 50	..	..	Severe struggling, and had to be held down forcibly for the administration.
Do.	187	Full-grown, healthy pariah.	2 28 30	0 0 36	0 1 15	0 3 16	0 4 3	..	..	Two gasps were made after respiration had ceased, but no air entered the lungs. Struggled severely, and had to be held down forcibly.
Do.	188	Ditto.	2 37 0	0 0 57	0 1 12	0 1 32	0 3 35	..	..	Severe struggling, and had to be held down forcibly.
Do.	189	Ditto.	2 48 10	0 0 40	0 2 0	0 2 23	0 4 37	..	..	Pulse returned for a few seconds before the heart stopped beating. Struggled a great deal.
Do.	190	Ditto.	2 56 10	0 1 4	0 1 44	0 2 4	0 4 13	..	..	Struggled severely. Gasped six times after the respiration ceased.
Do.	191	Under-sized pariah.	3 8 50	0 0 37	0 1 15	0 1 23	0 4 20	..	..	Struggled severely.
Do.	192	Pariah puppy, nine months old.	3 16 10	0 0 26	0 1 37	0 1 56	0 5 23	..	..	Struggled severely. A few flickering beats were felt at the pulse when the dog gasped, which he did once before the heart ceased beating.
Do.	193	Full-grown, but small pariah.	3 23 4	0 0 48	0 3 50	0 5 48	0 8 27	..	..	Struggled severely. Gasped twice before the heart stopped.
Do.	194	Full-grown pariah.	3 35 5	0 0 52	0 1 33	0 2 48	0 4 33	..	..	Struggled. Gasped thrice before the heart stopped.
Do.	195	Ditto.	3 42 8	0 0 56	0 2 42	0 3 32	0 5 28	..	..	Struggled.
Oct. 25	196	Ditto.	9 49 0	0 0 50	0 1 25	0 2 4	0 3 42	..	..	Struggled.
Do.	197	Ditto.	10 6 4	0 0 46	0 1 13	0 2 25	0 4 19	..	..	Gasped twice after the respiration ceased. Pulse stopped after 1 m. 50 s., and, with gasping, returned for 30 s. Stopped finally after 2 m. 25 s.

I. (*b*).—*Dogs fed on Liebig's extract of meat a quarter of an hour before inhalation.*

Do.	198	Large-sized, full-grown, healthy pariah.	10 12 8	0 0 51	0 2 52	0 3 44	0 5 15	..	..	Had Liebig's extract of meat, two teaspoonfuls in hot water, a quarter of an hour before inhalation. Gasped four times, and pulse returned after 40 s. Pulse stopped again after 4 m. 45 s. Chloroform given as in the previous experiment.
Do.	199	Healthy, large-sized pariah.	10 27 12	0 1 8	0 2 10	0 2 54	0 4 32	..	..	Struggled. Had Liebig's extract of meat as in the above case.
Do.	200	Small-sized, healthy pariah.	10 38 2	0 1 4	0 1 22	0 3 41	0 4 14	..	..	Struggled. Gasped before heart stopped beating. Ditto.
Do.	201	Full-grown, well-nourished pariah.	2 5 0	0 0 58	0 2 22	0 2 30	0 4 14	..	..	Struggled. Had Liebig's extract of meat as in the last case.
Do.	202	Ditto.	2 18 0	0 0 54	0 1 56	0 2 3	0 4 2	..	..	Struggled. Had Liebig's extract of meat as in the last case.
Do.	203	Ditto.	2 21 0	0 1 1	0 1 48 Gasped from 1 m. 55 s. till 2m. 9s.	0 2 18 Pulse returned at 3m. 10s. till 3m. 37s.	0 4 17	..	..	Struggled. Respiration ceased after 1 m. 48 s. After 1 m. 55 s. gasped till 2m. 9 s. Pulse ceased after 2m. 18 s. Returned after 3m. 10 s. and went on till 3 m. 37 s., when it finally stopped. Had Liebig's extract of meat as in the last case.
Do.	204	Full-grown, well-nourished, small-sized pariah.	0 2 29	0 1 20	0 4 17	0 5 2	0 7 34	..	..	Had Liebig's extract of meat as in the last case.
Do.	205	Full-grown, well-nourished, extra strong pariah.	2 41 0	0 0 50	0 1 29	0 1 22	0 1 22	..	..	In this case the dog, which was a very savage one, escaped twice before being chloroformed, and struggled very forcibly. He had to be brought into the room with a tight rope and chain round the neck, and was muzzled with the leather muzzle. The respiration ceased after 1 m. 20 s.; the muzzle and rope were removed as quickly as possible, but immediately afterwards, two or three seconds at most, the heart and pulse stopped simultaneously. It was impossible to perform ordinary artificial respiration, as no air could be forced in or out of the lungs. Post-mortem: Lungs engorged, right and left ventricle of heart engorged and distended with dark venous blood. Post-mortem appearances indicate death from asphyxia pure and simple. Liver contained less blood than usual, and it did not flow in section. Had Liebig's extract of meat as in the last case.

I. (*c*).—*Dogs kept fasting for twenty-four hours.*

Oct. 26.	206	Full-grown, healthy pariah, well nourished.	8 30 0	0 1 47	0 2 50	0 3 22	0 7 44	..	..	Struggled severely. Gasped several times in the interval between the stoppage of pulse and heart, and the pulse returned for 1 m. 35 s. (The chloroform in this and the following cases was given on the cloth cap inhaler.)

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Oct 26.	207	Full-grown pariah puppy, badly nourished.	8 43 0	0 1 9	0 2 13	0 3 23	0 6 35	..	..	Struggled severely. Gasped five times before heart stopped. Pulse returned for 30s. before heart stopped acting.
Do.	208	Full-grown, well-nourished pariah.	8 54 0	0 1 40	0 3 0	0 8 0	0 8 48	..	..	Struggled severely. Gasped several times before heart stopp. d.
Do.	209	Badly nourished, full-grown, small-sized pariah.	9 9 10	0 1 7	0 3 4	0 4 6	0 6 23	..	..	Struggled severely. Dog gasped six times before heart ceased to beat.
Do.	210	Ill-nourished, full-grown pariah.	9 21 0	0 1 33	0 3 43	0 4 20	0 9 16	..	..	Struggled severely.
		I. (*d*).—*Dogs that have had rectified spirit before inhalation. Chloroform in large doses on cloth cap inhaler.*								
Do.	211	Full-grown, healthy pariah	10 42 0	0 0 50	0 3 2	0 3 48	0 6 18	..	..	Struggled. Had ½ oz. of spiritus rectificatus immediately before the inhalation.
Do.	212	Large-sized, unusually strong pariah.	10 58 0	0 0 44	0 2 34	0 2 54	0 5 4	..	..	A small dose of chloroform was given preparatory to the administration of the spirit, as there was difficulty in getting him to swallow it without the anæsthetic.
Do.	213	Full-grown, badly nourished pariah, with a healing wound on left side of thorax.	11 15 0	0 2 22	0 3 51	0 4 15	0 6 28	..	..	Had ½ oz. of spiritus rectificatus with water four minutes before the inhalation. Little or no struggling.
Do.	214	Full-grown, badly nourished, weak pariah (emaciated).	11 24 10	0 1 33	0 8 23	0 9 15	0 12 46	..	..	Had ½ oz. of spirits and water ten minutes before the inhalation, which made it drunk a minute after, and inhaled the chloroform quietly, with little or no struggling. No force was required to compel this animal to inhale, and there was no holding of the breath as in the cases where no spirit was administered or it was administered immediately before the inhalation.
Do.	215	Full-grown, well-nourished pariah.	11 50 0	0 1 2	0 3 20	0 4 6	0 6 20	..	..	This dog struggled a great deal, although it had had ½ oz. of spirits ten minutes before the inhalation, as in the last case.
		I. (*e*).—*Five dogs that have had two teaspoonfuls of Liebig's extract of meat two hours before the administration of chloroform in large doses.*								
Do.	216	Full-grown, healthy pariah.	2 30 0	0 0 42	0 1 23	0 1 38	0 4 18	..	..	Struggled a great deal. Inhaler was covered by mackintosh in this case to exclude air. Had extract of meat. The chloroform in this and the following cases was given as in the previous experiments.
Do.	217	Full-grown, healthy pariah, unusually strong.	2 49 30	0 0 53	0 1 40	0 2 8	0 4 46	..	..	Struggled a great deal. Pulse returned for 8s. after it had stopped. Had extract of meat. Chloroformed in the same way.
Do.	218	Full-grown, ill-nourished pariah.	3 3 0	0 1 12	0 2 25	0 2 41	0 5 9	..	..	Struggled severely. Pulse returned for 17s. before the heart stopped. Had extract of meat. Chloroformed in the same way.
Do.	219	Full-grown, healthy, well-nourished pariah.	3 17 0	0 1 48	0 3 0	0 3 38	0 6 17	..	..	Struggled severely. Had extract of meat. Chloroformed in the same way.
Do.	220	Large-sized, powerful pariah.	3 27 0	0 1 23	0 2 37	0 4 5	0 6 58	..	..	Struggled severely. Gasped, and the pulse returned for 40s. before the heart stopped. Had extract of meat. Chloroformed in the same way.
		I. (*f*).—*Five dogs that have had food two hours previously to inhalation and chloroformed in the above manner.*								
Do.	221	Small-sized but full-grown and healthy pariah.	3 39 0	0 1 10	0 2 6	0 3 12	0 6 54	..	..	Struggled. Gasped after pulse stopped, and the pulse returned for 15s. before the heart stopped. Had food two hours before.
Do.	222	Full-grown, healthy pariah.	3 49 10	0 1 10	0 2 22	0 3 17	0 6 38	..	..	Struggled very hard. Pulse returned for 28s. after it had stopped. Had food two hours before.
Do.	223	Lean but full-grown pariah.	4 10 54	0 1 4	0 1 43	0 3 5	0 4 36	..	..	Struggled. Gasped after breathing had ceased. Had food 2 h. before inhalation.
Do.	224	Old and large-sized pariah.	4 20 40	0 0 58	0 2 0	0 2 33	0 5 43	..	..	Struggled a great deal. Pulse returned for 30s. after it had stopped. Had food two hours before.
Do.	225	Well-nourished, full-grown pariah, unusually strong.	4 30 6	0 0 49	0 1 2	0 2 15	0 3 0	..	..	Struggled very hard, and was choked in being brought up to the table. Had food two hours before.

I. (*g*).—*Dogs kept fasting from the previous evening chloroformed with large doses as usual.*

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Oct. 28	226	Full-grown, well-nourished pariah.	10 18 40	0 1 20	0 2 5	0 3 20	0 8 29	..	..	Dog struggled very much during inhalation. Chloroformed fasting. The chloroform was given, as in the previous cases, on a cloth cap inhaler.
Do.	227	Under-sized, fairly-nourished pariah.	10 32 8	0 0 57	0 1 32	0 2 2	0 6 42	..	..	Dog did not struggle much. Chloroformed starving.
Do.	228	Large-sized, full-grown powerful pariah.	10 51 10	0 1 12	0 2 23	0 4 26	0 6 28	..	..	Struggled hard. Gasped after pulse stopped. Pulse returned simultaneously for 40 s. Chloroformed starving.
Do.	229	Large-sized, full-grown pariah.	11 1 48	0 0 45	0 3 14	0 4 4	0 6 42	..	..	Struggled hard. Chloroformed starving.
Do.	230	Large-sized, full-grown but ill-nourished pariah.	11 12 30	0 1 35	0 1 48	0 2 18	0 5 12	..	..	Struggled hard. Gasped, and pulse returned for 1 m. and 5 s. before heart ceased contracting. Chloroformed fasting.
Do.	231	Badly nourished, full-grown pariah.	11 23 6	0 1 23	0 6 18	0 7 11	0 9 3	..	..	Struggled a little. Chloroformed fasting.
Do.	232	Large-sized, full-grown pariah.	11 45 15	0 2 6	0 2 49	0 3 13	0 5 12	..	..	Struggled very hard. Gasped after respiration ceased. Pulse returned for 23 s. Chloroformed fasting.
Do.	233	Large-sized, powerful pariah.	11 55 0	0 1 3	0 1 28	0 1 53	0 3 13	..	..	Struggled very hard. Chloroformed fasting.
Do.	234	Full-grown pariah, well nourished.	3 3 30	0 1 14	0 1 45	0 2 20	0 6 28	..	..	Ditto ditto ditto
Do.	235	Full-grown, healthy, well-nourished pariah.	3 19 0	0 1 1	0 1 55	0 3 17	0 4 37	..	..	Struggled very hard. Chloroformed fasting.
Do.	236	Weakly pariah puppy, eight months old.	3 28 0	0 1 45	0 2 48	0 3 23	0 6 12	..	..	Struggled feebly. Chloroformed fasting.
Do.	237	Ditto.	3 38 0	0 0 39	0 1 48	0 3 12	0 4 13	..	..	Ditto ditto
Do.	238	Lean, full-sized, ill-nourished pariah.	3 47 45	0 0 57	0 2 14	0 3 26	0 5 27	..	..	Struggled hard. Gasped several (13) times, when the pulse returned for 23 s. Chloroformed fasting.
Do.	239	Lean and full-grown pariah pup, about nine months old.	3 56 20	0 1 11	0 2 24	0 3 43	0 6 0	..	..	Struggled. Chloroformed fasting.
Do.	240	Full-grown, badly fed pariah.	4 5 0	0 0 46	0 1 58	0 3 8	0 6 23	..	..	Ditto ditto
Do.	241	Full-grown, well-nourished pariah.	4 13 6	0 2 3	0 2 23	0 3 8	0 5 0	..	..	Struggled very hard. Gasped after breathing had stopped. Chloroformed fasting.
Do.	242	Large-sized, full-grown, powerful pariah.	4 23 0	0 1 6	0 1 48	0 2 43	0 6 58	..	..	Had to be muzzled. Struggled very hard. Gasped after breathing stopped, and the pulse returned for 12 s. Chloroformed fasting.
Do.	243	Full-grown, healthy pariah.	4 34 50	0 1 3	0 2 28	0 3 12	0 8 5	..	..	Struggled feebly. Chloroformed fasting.
Do.	244	Full-grown, well-nourished pariah.	10 30 0	0 0 46	0 1 12	0 3 52	0 5 25	..	..	Dog struggled. Chloroformed fasting.
Do.	245	Ill-fed pariah, full grown.	10 37 55	0 0 38	0 1 22	0 2 33	0 4 53	..	..	Struggled hard. Gasped. Chloroformed fasting.
Do.	246	Thin, full-sized pariah dog, with healing sore on back.	10 43 10	0 0 56	0 1 14	0 3 37	0 6 0	..	..	Struggled. Chloroformed fasting.

I. (*h*).—*Dogs chloroformed as they were obtained from the bazaars, and chloroformed with large doses on cloth inhaler.*

Do.	247	Full-grown, badly nourished pariah.	10 50 50	0 0 55	0 2 3	0 5 48	0 6 36	..	..	Struggled hard. Gasped before heart stopped. Dog chloroformed as he was brought in.
Do.	248	Ditto.	11 0 0	0 0 48	0 1 36	0 2 45	0 4 58	..	..	Struggled.
Do.	249	Badly nourished (emaciated), full grown pariah.	11 7 3	0 0 44	0 1 28	0 3 0	0 5 24	..	..	Struggled.
Do.	250	Well-nourished, full-grown pariah (very vicious).	11 17 30	0 0 50	0 1 47	0 6 33	0 7 48	..	..	Struggled very hard and gave trouble when being brought to the table. Gasped after breathing had stopped four times.
Do.	251	Full-sized, ill-fed pariah.	11 26 0	0 0 36	0 0 53	0 1 51	0 3 17	..	..	Struggled hard.
Oct. 29	252	Full-sized, well-fed, strong pariah.	11 32 40	0 1 22	0 2 31	0 4 16	0 11 12	..	..	Struggled. In this experiment the cessation of the heart's action was judged by means of a needle thrust into the organ, and not by auscultation as in the former cases.
Do.	253	Emaciated, full-grown pariah.	11 47 50	0 1 13	0 2 7	0 4 28	0 6 53	..	..	Struggled. Gasped several times. Needle used as in the last case.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Oct. 29	254	Full-sized, healthy pariah.	3 1 11	0 1 59	0 2 42	0 3 58	0 12 8	..	..	Struggled hard.
Do.	255	Old pariah, blind of one eye from an opacity of cornea.	3 15 30	0 0 37	0 1 35	0 3 36	0 4 38	..	..	Struggled. Gasped after breathing had ceased.
Do.	256	Full-grown, well-nourished pariah.	3 24 30	0 0 58	0 2 3	0 3 58	0 8 33	..	..	Struggled. Gasped after breathing had ceased. Heart's action ceased to be heard with the stethoscope after 4 m. 37 s., but on thrusting a needle into the heart, it was found to be acting and ceased only after 8 m. 33 s. from the time of inhalation.
Do.	257	Well-nourished, full-grown, powerful pariah.	3 40 45	0 0 56	0 2 4	0 4 52	0 6 30	..	..	Struggled.
Do.	258	Well-nourished, full-grown pariah	3 56 10	0 0 48	0 1 16	0 3 17	0 6 40	..	..	Ditto.
Do.	259	Full-grown, well-nourished pariah.	4 4 0	0 0 53	0 1 50	0 2 43	0 7 38	..	..	Ditto.
Do.	260	Full-grown, ill-conditioned pariah.	4 16 25	0 1 36	0 2 37	0 3 35	0 6 33	..	..	Struggled very hard.
Oct. 30	261	Full-grown pariah, fairly nourished.	10 1 0	0 1 10	0 2 1	0 2 45	0 5 30	..	..	Struggled and resisted as usual. Needle, with flag, thrust into the heart after stopping of pulse. Movements of flag, at first violent, gradually became feeble, and when they were reduced to mere vibration, the heart was said to have ceased.
		II. (*a*).—*Two ounces of chloroform in tin box.*								
Do.	262	Ill-nourished, middle-sized pariah.	10 13 30	Not noted.	0 45 28	0 48 15	0 52 12	..	..	The anæsthetic was administered by placing the head and neck of the dog in a box 8 cubic feet in capacity, in which 2 oz. of chloroform had been evaporated. Dog struggled. Dog breathing naturally, with a good pulse, at 11 h. 10 m. Lid of box removed, and 2 oz. of chloroform placed in it on blotting paper. Box covered again at 11 h. 10 m. 45 s. The first dose of chloroform in this experiment was placed in the box an hour previous to the inhalation, and it was proved afterwards that the lid had been removed more than once during this time.
Do.	263	Ill-nourished, under-sized pariah.	11 30 0	Do.	0 0 45	0 2 30	0 3 45	..	..	Box cleaned, and dog chloroformed in the same way. Dog struggled. The inhalation was commenced immediately after the chloroform was put into the box.
Do.	264	Large-sized, full-grown pariah.	11 43 0	Do.	0 1 46	0 3 30	0 5 0	..	..	Dog struggled hard. Chloroformed in the same manner.
Do.	265	Ill-fed, small pariah.	3 0 0	Do.	0 2 43	0 6 8	0 6 55	..	..	Struggled as usual. Chloroformed as in the last case. Gasped once before death.
Do.	266	Small-sized, full-grown, and weakly pariah.	3 16 50	Do.	0 1 37	0 2 51	0 4 39	..	..	Struggled as usual. Chloroform given as in the last case.
		II. (*b*).—*One ounce of chloroform instead of two ounces given in the tin box as in* II. (*a*.)								
Do.	267	Full-sized, healthy, well-nourished pariah.	3 31 15	Not noted.	0 1 48	0 3 2	0 7 38	..	..	Dog struggled. One ounce of chloroform administered instead of two, but in the same tin box as in the last five cases.
Do.	268	Large-sized, powerful pariah.	3 42 45	Do.	0 3 14	0 6 12	0 8 5	..	..	Struggled a great deal. Chloroform given as in Experiment 267.
Do.	269	Full-grown, ill-nourished pariah.	3 55 0	Do.	0 2 35	0 4 26	0 5 8	..	..	Struggled as usual. Chloroform given as in the last case.
Oct. 31	270	Full-grown, ill-nourished pariah.	9 48 0	Do.	0 2 30	0 6 30	0 7 42	..	..	Chloroformed in tin box as in the last case. Did not struggle at all during inhalation.
Do.	271	Full-grown, well-nourished pariah.	10 0 0	Do.	0 3 0	0 6 40	0 10 15	..	..	Struggled as usual. Breathed again 50 s. after the respiration ceased and continued breathing for 50 s. Chloroform given as in the last case.
		II. (*c*).—*Half an ounce of chloroform used in the tin box.*								
Do.	272	Fairly nourished, full-grown pariah.	10 14 10	Not noted.	0 7 35	0 13 55	0 16 10	..	..	Chloroformed as above. Struggled as usual, yelped loudly. Breathing returned 20 s. after it had stopped and continued for 5 m. 25 s. afterwards.
Do.	273	Full-grown, fairly well-nourished pariah.	10 35 20	Do.	0 19 4	0 19 6	0 19 12	—	—	Struggled very hard and yelped loudly. The breathing stopped very gradually in this case, becoming shallow by degrees until it ceased. Chloroformed as in the last case.

Date.	No.	Description of dog.	Time at which inhalation commenced	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Oct. 31	274	Large-sized, powerful, full-grown pariah.	11 2 0	Not noted.	..	..	..	..	..	Struggled and yelped loudly. Breathing became stertorous after 10 m. 15 s. Convulsions set in at 11.45 o'clock. The dog gradually recovered and was let loose at 12.15.
Do.	275	Full-grown, healthy pariah.	3 38 0	Do.	0 11 15	0 12 2	0 13 12	..	..	Struggled and yelped loudly. Breathing stopped very gradually as in Experiment 273. The action of the heart became very intermittent towards the end. There were three distinct intervals of about 8 s. each, when there were no contractions, each interval being followed by very quick cardiac action. Chloroform given as in the last case.
Do.	276	Powerful, full-grown, healthy pariah.	4 6 0	Do.	0 17 5	0 17 12	0 18 2	..	..	Had to be muzzled. Struggled a great deal. Breathing ceased very gradually. Chloroformed as in the last case.
		I. (*i*).—*Dogs chloroformed with about two ounces of chloroform at a time on the cloth inhaler.*								
Do.	277	Full-grown, healthy pariah.	11 48 0	0 0 55	0 1 17	0 2 5	0 4 3	..	..	Struggled as usual.
Do.	278	Ditto.	11 55 0	0 1 7	0 1 58	0 3 21	0 5 34	..	..	Struggled as usual.
Do.	279	Full-grown, pariah pup.	3 43 0	0 0 45	0 1 23	0 1 52	0 4 28	..	..	Held its breath a great deal, and then made some very full inspirations. Gasped before heart stopped.
Do.	280	Full-grown, healthy pariah.	3 55 55	0 1 18	0 2 11	0 4 28	0 6 18	..	..	The dog struggled as usual.
Do.	281	Large-sized, full-grown pariah.	4 13 45	0 1 10	0 3 5	0 3 12	0 8 42	..	..	Struggled in the usual manner.
		II. (*a*).—*Two ounces of chloroform given in tin box.*								
Nov. 1	282	Under-sized, ill-fed pariah.	9 49 0	Not noted.	0 4 30	0 6 0	0 7 24	..	..	Chloroformed in tin box. Struggled as usual. Temperature in rectum at 9 h. 53 m. during inhalation 101·6° F. Temperature same after heart stopped.
Do.	283	Full-grown, well-nourished pariah.	10 2 30	Do.	0 11 47	0 12 30	0 15 17	..	..	Did not struggle at all. Temperature in rectum at 10 h. 5 m. 30 s. during inhalation 100° F. Temperature when heart stopped, 100·5° F.
Do.	284	Under-sized, ill-nourished pariah.	10 26 30	Do.	0 4 40	0 5 25	0 5 30	..	..	Chloroformed as above. Struggled as usual. Temperature in rectum before inhalation 102·4° F.; when heart stopped 103° F.
Do.	285	Full-sized, well-nourished pariah.	10 41 50	Do.	0 4 46	0 5 52	0 9 38	..	..	Temperature before inhalation 99·8° F. Struggled. Temperature immediately after death 100·4° F.
Do.	286	Full-sized pariah, with opacity of cornea in one eye.	10 58 13	Do.	0 4 24	0 5 8	0 8 59	..	..	Temperature (*a*) before inhalation 102° F.; (*b*) after heart stopped 102·3° F. Struggled.
		II. (*b*).—*One ounce of chloroform given in tin box.*								
Do.	287	Full-sized, well-nourished pariah.	11 12 0	Not noted.	0 8 31	0 10 0	0 14 6	..	..	Struggled very hard. Temperature before inhalation 102° F.; after heart ceased 103° F.
Do.	288	Full-sized, healthy pariah.	11 32 0	Do.	0 6 17	0 7 12	0 10 4	..	..	Temperature before inhalation 103·8° F.; after heart ceased 104° F. Struggled as usual.
Do.	289	Emaciated, full-grown pariah, lame in one leg from an old fracture.	3 7 0	Do.	0 4 12	0 4 53	0 10 13	..	..	Dog struggled. Temperature before inhalation 101·6° F.; after death 101·8° F. Gasped before the heart ceased. Pulse returned and lasted for 1 m. 50 s.
Do.	290	Full-grown, healthy pariah.	3 25 30	Do.	0 4 3	0 6 47	0 8 42	..	..	Temperature before inhalation 103° F. Dog struggled. After death 103·4° F.
Do.	291	Ill-nourished, full-grown pariah.	3 40 30	Do.	0 7 26	0 8 33	0 11 53	..	..	Temperature before inhalation 103° F. Dog struggled. Breathing stopped very gradually. Temperature after death 104° F.
		II. (*c*).—*Half an ounce of chloroform used in these cases in tin box.*								
Do.	292	Full-grown, ill-nourished pariah.	3 58 15	Not noted.	0 8 11	0 9 38	0 10 28	..	..	Dog struggled. Temperature before inhalation 103° F.; after death 103·2° F.
Nov. 2.	293	Under-sized, ill-nourished pariah.	9 26 0	Do.	0 10 40	0 11 10	0 15 40	..	..	Struggled as usual. Temperature in rectum before inhalation 99·8° F. Temperature remained the same when heart ceased acting. Gasped at 9 h. 38 m.
Do.	294	Under-sized, fairly well nourished pariah.	9 47 12	Do.	0 16 0	0 17 25	0 19 55	..	..	Struggled as usual. Temperature in rectum before inhalation 100° F., and remained the same when heart ceased acting.
Do.	295	Under-sized, fairly nourished pariah.	10 29 0	Do	0 10 30	..	..	..	..	Chloroformed as above. Temperature in rectum before inhalation 102° F. Respiration, after stopping for 30 s., returned again, and the dog gradually recovered. Temperature when removed 102·6° F. Removed from the box at 11 o'clock.
Do.	296	Full-grown, lean pariah.	11 7 45	Do.	0 14 8	0 16 31	0 18 1	..	..	Temperature in rectum before inhalation 100·6° F.; after death 101° F. Struggled a great deal.

III. (*a*).—*In these cases one-fourth of a grain of morphinæ hydrochloras was injected over the epigastrium of the dog fifteen minutes before the inhalation. Chloroform in large doses given on the cloth inhaler.*

Date.	No.	Description of Dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped beating after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 2.	297	Full-grown, small-sized pariah.	11 14 30	0 1 3	0 1 45	0 2 7	0 6 33	..	..	Morphine injected at 10 h. 50 m. Struggled as usual.
Do.	298	Full-grown, well-nourished pariah.	11 30 0	0 1 38	0 3 12	0 3 37	0 6 22	..	..	Morphine injected at 11 h. 16 m. Dog struggled.
Do.	299	Full-grown, healthy pariah.	11 46 0	0 1 48	0 2 5	0 3 13	0 7 58	..	..	Morphine injected at 11 h. 32 m. Struggled. Gasped after pulse stopped.
Do.	300	Full-sized, well-nourished pariah puppy.	2 36 0	0 0 35	0 1 5	0 1 10	0 2 5	..	..	Morphine injected at 2 h. 22 min. Pulse ceased almost immediately after the respiration stopped. Struggled.
Do.	301	Full-sized, well-nourished pariah.	2 45 0	0 0 43	0 1 33	0 1 52	0 5 3	..	..	Morphine injected at 2 h. 30 s. Gasped after pulse stopped.

III. (*b*).—*Half grain of morphine injected in these dogs before being chloroformed with large doses on the cloth cap inhaler.*

Do.	302	Full-sized, ill-nourished pariah.	3 3 10	0 1 1	0 2 12	0 3 4	0 5 17	..	..	Morphine injected at 2 h. 48 m. Dog struggled.
Do.	303	Large-sized, well-nourished pariah.	3 16 2	0 0 44	0 2 8	0 3 36	0 4 53	..	..	Morphine injected at 3 P.M. Struggled very hard and got loose. Caught and brought back, and held down forcibly a second time.
Do.	304	Full-sized, healthy pariah.	3 25 10	0 1 10	0 2 29	0 4 42	0 5 2	..	..	Morphine injected at 3 h. 11 m. 20 s. Gasped after pulse stopped.
Do.	305	Full-sized, ill-nourished pariah with a cyst on tongue.	3 38 20	0 1 3	0 1 36	0 2 28	0 5 47	..	..	Morphine injected at 3 h. 23 m.
Nov. 4.	306	Full-sized, fairly nourished pariah.	9 30 0	0 0 45	0 1 20	0 1 50	0 5 8			Morphine at 9 h. 15 m. Struggled as usual. Pulse stopped 30 s. after respiration.

V. (*d*).—*Artificial respiration tried after respiration ceased on dogs that had had a subcutaneous injection of half a grain of morphine. (The chloroform was given in large doses on the cloth cap inhaler.)*

Do.	307	Under-sized, fairly nourished pariah.	9 55 0	0 0 40	0 1 40	0 4 0	Not noted.	9 56 50	0 4 0	Morphine injected at 9 h. 38 m. Pulse found to have stopped at 4 m. after inhalation began. Artificial respiration commenced 10 s. after respiration ceased; continued for 4 m. Flag introduced into heart at the end of 4 m. did not vibrate. Artificial respiration commenced 10 s. after breathing stopped. Unsuccessful.
Do.	308	Ill-nourished, mangy pariah puppy, between four and five months old.	10 7 0	0 0 45	0 1 40	0 4 50	0 5 25	10 9 0	0 4 0	Morphine injected at 9 h. 47 m. Struggled slightly. Artificial respiration continued for 4 m.; no effect. Pulse stopped during artificial respiration. Artificial respiration commenced after 20 s. Unsuccessful.
Do.	309	Full-grown pariah puppy, emaciated.	10 28 50	0 0 46	0 1 4	Not noted.	Not noted	10 30 15	0 6 0	Morphine injected at 10 h. 17 m. Dog died. Artificial respiration commenced after 21 s. Unsuccessful.
Do.	310	Full-grown, powerful pariah.	10 38 0	0 0 48	0 1 52	..	..	10 40 0	0 8 0	Morphine injected at 10 h. 23 m. Natural respiration re-established at 10 h. 48 s. Artificial respiration commenced 8 s. after breathing stopped. Successful.
Do.	311	Emaciated, full-sized pariah.	11 6 0	0 1 0	0 3 4	Not noted.	Not noted.	11 9 29	0 12 0	Half grain morphine injected at 10 h. 52 m. Artificial respiration commenced 16 s. after breathing stopped. Unsuccessful.

III. (*c*).—*Half a grain of morphine injected fifteen minutes before, and varying quantities of strychnine immediately before, administration of chloroform. Artificial respiration tried. Chloroform given in large doses in cloth cap inhaler.*

Nov. 5	312	Ill-nourished, under-sized pariah.	9 48 0	0 1 0	0 2 30	0 5 0	0 7 10	..	..	Morphine injected at 9 h. 33 m.; ·02 gr. strychnine injected immediately before inhalation.
Do.	313	Badly nourished, under-sized pariah.	10 0 0	0 1 4	0 2 0	0 2 50	0 4 15	..	..	Morphine injected at 9 h. 45 m.; and ·02 gr. of strychnine immediately before inhalation.
Do.	314	Fairly nourished, small-sized pariah.	10 22 0	0 0 45	0 1 50	0 1 55	0 8 3	..	..	Morphine injected at 10 h. 7 m.; ·02 gr. of strychnine injected at 10 h. 22 m.
Do.	315	Full-sized, well-nourished pariah.	10 45 0	0 0 40	0 2 10	0 3 3	0 9 13	..	..	Morphine injected at 10 h. 30 m.: strychnine (·02 gr.) injected at 10 h. 44 m.
Do.	316	Full-grown, well-nourished pariah.	10 54 0	0 0 46	0 1 23	0 2 28	0 6 8	..	..	Morphine injected at 10 h. 35 m.; strychnine (·02 gr.) injected at 10 h. 53 m.
Do.	317	Full-grown, small-sized pariah.	11 0 30	0 0 53	0 2 8	0 2 53	0 6 41	..	..	Morphine injected at 10 h. 44 m.; strychnine (·02 gr.) injected at 11 h.
Do.	318	Full-grown, ill-nourished pariah.	11 8 0	0 0 42	0 1 7	0 2 40	0 6 1	..	..	Morphine injected at 10 h. 52 m.; strychnine (·03 gr.) at 11 h. 7 m. 30 s.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 5.	319	Full-grown, healthy pariah.	11 16 30	0 59 0	0 2 1	0 2 32	0 6 30	..	..	Morphine injected at 11 h. 2 m.; strychnine (·03 gr.) injected at 11 h. 16 m.
Do.	320	Full-grown, healthy pariah.	11 25 12	0 1 0	0 3 30	0 4 11	0 9 33	..	..	Morphine injected at 11 h. 8 m.; strychnine (·03 gr.) injected at 11 h. 25 m.
Do.	321	Full-grown, healthy pariah.	11 36 30	0 1 20	0 3 46	0 4 15	0 9 50	..	..	Morphine injected at 11 h. 16 m.; strychnine (·03 gr.) injected at 11 h. 35 m. 50 s.
Do.	322	Full-grown, powerful pariah.	11 47 0	0 0 54	0 13 4	0 13 46	0 14 6	..	..	Morphine injected at 11 h. 21 m.; strychnine (·03 gr.) injected at 11 h. 46 m. The respiration ceased for 40 s. at 11 h. 52 m. and returned.
Do.	323	Full-grown, healthy pariah.	12 6 0	0 1 15	0 2 0	0 2 54	0 4 50	..	..	Morphine injected at 11 h. 29 m.; strychnine (·03 gr.) injected at 12 h. 5 m.
Do.	324	Full-grown, large-sized, healthy pariah.	12 13 30	0 1 2	0 2 28	0 3 0	0 5 26	..	..	Morphine injected at 11 h. 56 m.; strychnine (·03 gr.) injected at 12 h. 13 m.
Do.	325	Full-grown, large-sized, ill-nourished pariah.	2 59 0	0 0 45	0 1 15	0 2 10	0 3 40	..	..	Morphine injected at 2 h. 44 m.; strychnine (·03 gr.) injected at 2 h. 58 m. Began to gasp 15 s. after respiration ceased.
Do.	326	Under-sized, ill-nourished pariah.	3 4 0	0 0 45	0 2 25	0 2 30	0 6 40	..	..	Morphine injected at 2 h. 47 m.; strychnine (1-100th gr.) injected at 3 h. 4 m. 15 s. Gasped five times 25 s. after cessation of respiration.
III. (*d*).—*Half a grain of morphine injected fifteen minutes before the experiment, and varying quantities of atropine immediately before. The chloroform was given in large doses on cloth inhaler.*										
Do.	327	Full-grown, healthy pariah.	3 12 30	0 1 10	0 1 55	0 2 23	0 5 55	..	..	Morphine injected at 2 h. 50 m.; atropine (1-100th gr.) injected at 3 h. 12 m.
Do.	328	Ditto.	3 22 0	0 1 12	0 2 8	0 2 15	0 7 35	..	..	Morphine injected at 2 h. 55 m.; atropine (1-50th gr.) injected at 3 h. 21 m. 30 s.
Do.	329	Small-sized, healthy pariah.	3 33 30	0 0 58	0 3 7	0 3 14	0 5 35	..	..	Morphine injected at 3 h. 10 m.; atropine (3-100ths gr.) injected at 3 h. 32 m.
Do.	330	Small, healthy pariah.	3 41 10	0 0 50	0 4 48	0 5 6	0 8 2	..	..	Morphine injected at 3 h. 20 m.; atropine (1-25th gr.) injected at 3 h. 40 m.
Do.	331	Full-sized, well-nourished pariah.	3 52 0	0 1 22	0 2 18	0 2 54	0 6 35	..	..	Morphine injected at 3 h. 35 m.; atropine (1-25th gr.) injected at 3 h. 51 m.
Do.	332	Ditto.	4 0 45	0 1 12	0 5 53	0 6 55	0 7 52	..	..	Morphine injected at 3 h. 46 m.; atropine (3-50ths gr.) injected at 3 h. 59 m.
Do.	333	Ditto.	4 18 0	0 0 37	0 2 36	0 3 24	0 5 15	..	..	Morphine injected at 3 h. 55 m.; atropine (7-100ths gr.) injected at 4 h. 17 m.
Do.	334	Full-grown, healthy pariah.	4 24 30	0 0 50	0 2 3	0 2 41	0 5 8	..	..	Morphine injected at 4 h. 5 m.; atropine (8-100ths gr.) injected at 4 h. 23 m.
Nov. 6.	335	Under-sized, ill-nourished pariah.	10 8 0	0 1 20	0 2 25	0 2 30	0 5 5	..	..	Morphine injected at 9 h. 45 m.; atropine (9-100ths gr.) injected at 10 h. 7 m. Found to be quite narcotised from effect of morphine.
Do.	336	Ditto.	10 16 0	0 1 8	0 2 0	0 2 28	0 4 50	..	..	Morphine injected at 9 h. 55 m.; atropine (1-10th gr.) injected at 10 h. 15 m.
III. (*c*).—*Half a grain of morphine injected some minutes before the experiment, and varying quantities of atropine and strychnine immediately before. The chloroform was administered in large doses in cloth cap inhaler.*										
Do.	337	Full-grown, fairly well-nourished pariah.	10 41 0	0 0 55	0 1 30	0 2 42	0 4 0	..	..	Morphine injected at 10 h. 23 m. Atropine (1-100th gr.) and strychnine (1-100th gr.) injected at 10 h. 19 m. 45 s. Chloroformed with the cloth cap inhaler as in previous cases.
Do.	338	Full-grown, under-sized, fairly well-nourished pariah.	10 47 50	0 0 58	0 2 2	0 5 42	0 7 56	..	..	Morphine injected at 10 h. 33 m. Atropine (1-50th gr.) and strychnine (1-50th gr.) of each injected at 10 h. 47 m.
Do.	339	Full-grown, large-sized pariah.	11 0 0	0 1 33	0 2 10	0 2 52	0 4 13	..	..	Morphine injected at 10 h. 45 m. 30 s. Injected strychnine (3-100ths gr.) and atropine (3-100ths gr.) at 10 h. 59 m.
Do.	340	Full-grown, healthy pariah.	11 9 10	0 0 53	0 2 35	0 3 2	0 4 20	..	..	Morphine injected at 10 h. 55 m. Injected strychnine (1-25th gr.) and atropine (1-25th gr.) at 11 h. 7 m.
Do.	341	Full-grown, well-nourished pariah.	11 28 5	0 1 28	0 2 5	0 3 3	0 6 15	..	..	Morphine injected at 11 h. 10 m. Atropine (1-20th gr.) and strychnine (1-20th gr.) injected at 11 h. 27 m.
Do.	342	Full-grown, emaciated pariah.	11 40 0	0 0 50	0 1 30	0 2 3	0 4 0	..	..	Morphine injected at 11 h. 21 m. Atropine (4-100ths gr.) and strychnine (6-100ths gr.) injected at 11 h. 39 m.
Do.	343	Large-sized, full-grown pariah.	12 14 0	0 2 4	0 6 11	0 8 30	0 14 3	..	..	Morphine (½ gr.) injected at 11 h. 50 m. Strychnine (7-100ths gr.) and atropine (7-100ths gr.) injected at 12 h. 5 m. Chloroformed in a box, as it attempted to bite everyone that approached it. Lid of box removed and chloroform given in the usual way at 12 h. 16 m. 15 s.
Do.	344	Full-grown, ill-nourished pariah.	3 36 40	0 0 53	0 1 22	0 1 55	0 5 53	..	..	Morphine injected at 3 h. 20 m. Atropine (8-100ths gr.) and strychnine (8-100ths gr.) injected at 3 h. 36 m.
Do.	345	Ditto	3 45 0	0 1 8	0 1 46	0 2 12	0 8 12	..	..	Morphine injected at 3 h. 25 m. Atropine (9-100ths gr.) and strychnine (9-100ths gr.) injected at 3 h. 44 m.

Date.	No.	Description of dog.	Time at which inhalation commenced	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued at—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 6	346	Full-grown, ill-nourished pariah.	3 55 0	0 1 6	0 1 48	0 2 0	0 5 6	..	..	Morphine injected at 3 h. 37 m. Atropine (1-10th gr.) and strychnine (1-10th gr.) injected at 3 h. 54 m.
Do.	347	Small-sized, healthy pariah.	4 15 45	0 1 4	0 2 1	0 2 48	0 6 3	..	..	Morphine injected at 4 h. 5 m. Atropine and strychnine (as 1-10th gr.) injected at 4 h. 11 m.
Do.	348	Full-grown pariah puppy.	4 21 0	0 1 13	0 1 24	0 2 0	0 4 53	..	..	Morphine injected at 4 h. 6 m. Atropine and strychnine (as 1-10th gr.) injected at 4 h. 19 m. 30 s.
IV. (*a*).—*Chloroform administered in a special bottle and inhaler with valves attached.* (*Vide Appendix B.*)										
Nov. 7	349	Small-sized, badly-fed pariah.	10 47 0	0 10 0	..	..	..	..	..	This was a trial experiment to see if the valves in the apparatus worked properly. The dog was allowed to revive, as several interruptions occurred.
Do.	350	Full-sized, healthy pariah.	11 13 30	0 6 43	..	..	..	..	..	Half an ounce of chloroform given in an apparatus specially devised for the purpose. By this means air was allowed to mix freely with the chloroform vapour in a bottle connected with the inhaler. Breathing became very rapid after the lapse of 14 m. (62 to the minute); after 23 m. it became very shallow, and remained so for half an hour. The cornea remained insensitive for fully an hour and a half. The dog gradually recovered, and was removed from the table at 10 m. past 1 P.M.
Nov. 8	351	Full-grown, small-sized pariah.	10 4 0	0 0 27	0 44 45	0 45 5	0 47 10	..	..	Half an ounce of chloroform given as in the above case. After 20 m. the tube, connected with the inhaler, for the exit of the expired air, was removed, as the valves were acting imperfectly, and the aperture of the tube was closed with a cork, to which a new valve was attached. Breathing became very slow and shallow towards death. This observation was not considered trustworthy on account of the interruptions during the experiment.
Do.	352	Small-sized, ill-fed pariah.	10 37 17	Not noted.	0 7 3	0 10 14	0 10 34	..	..	This observation is reliable, as the valves in the tubes were acting perfectly, and no interruption occurred; ½ oz. of chloroform was given as in the above case.
Do.	353	Full-grown, ill-nourished puppy.	11 14 30	0 1 48	0 18 8	0 19 1	0 22 14	..	..	Half an ounce of chloroform given as in the last case.
Do.	354	Small-sized, ill-fed pariah.	2 43 0	0 1 50	0 5 0	0 7 0	0 9 30	..	..	Ditto.
IV. (*b*).—*Three drachms of chloroform given in the same bottle apparatus.*										
Do.	355	Small-sized, ill-nourished pariah.	3 1 15	0 1 15	1 16 10	1 17 18	1 20 25	..	..	Three drachms of chloroform given in this case. The respiration became slow and laboured at 3 h. 15 m., and remained so for 45 m.; but as there were no indications of the dog dying at this time, an extra drachm of chloroform was poured into the bottle at 4 h. 3 m.
Do.	356	Ditto.	4 28 10	0 1 45	0 10 35	0 11 6	0 14 40	..	..	3 drs. of chloroform given as in the last case. After the breathing had stopped after 10 m. 35 s., it recovered in a minute's time and continued for 1 m. and 8 s., when it stopped again.
IV. (*c*).—*Two drachms of chloroform given in the same bottle apparatus.*										
Do.	357	Small-sized, ill-nourished pariah.	4 45 50	0 1 3	..	..	..	..	..	3 drs. of chloroform given in the same apparatus as in the last case. An extra drachm was poured into the bottle at 5 m. 20 s. Was seen to be recovering at 5 m. 49 s., and an extra drachm of chloroform was again placed in the bottle. At 6 m. 10 s. the dog was found to be again reviving, and he was removed from the table.
Nov. 9.	358	Ditto.	9 48 20	0 2 20	0 20 10	0 23 30	0 25 10	..	..	2 drs. of chloroform given as above, and had to be repeated, as the dog was recovering at 10 h. 8 m.
Do.	359	Full-sized, well-nourished pariah.	10 18 6	0 1 50	2 7 30	2 8 40	2 9 2	..	..	2 drs. of chloroform given as above. Dog was recovering at 11 h. 9 m. 1 dr. of chloroform added at 11 h. 10 m. Dog was seen to be recovering again at 12, when another drachm of chloroform was added. Dog 27 lb. in weight.
I. (*f*).—*Five dogs fed with gruel at 12.30 o'clock, and chloroform in the usual way with large doses on a cloth inhaler.*										
Do.	360	Full-grown, healthy pariah.	2 30 5	0 1 8	0 2 25	0 3 28	0 5 2	..	..	Struggled as usual. Weight of dog 24 lb.
Do.	361	Ditto.	2 41 20	0 1 2	0 1 53	0 3 47	0 5 11	..	..	Struggled more than usual. Dog weighed 26 lb.
Do.	362	Ditto.	2 52 18	0 1 33	0 2 55	0 3 29	0 5 16	..	..	Struggled as usual. Dog's weight 32 lb.
Do.	363	Ditto.	3 6 0	0 2 3	0 3 20	0 4 5	0 5 42	..	..	Do. Do. 28 lb.
Do.	364	Ditto.	3 15 20	0 0 42	0 1 56	0 3 55	0 5 6	..	..	Do. Do. 25 lb.

IV. (*e*).—*Two drachms of chloroform given in bottle apparatus.*

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 11.	365	Full-grown, well-fed pariah.	9 29 0	0 1 10	0 2 40	2 46 30	2 53 0	..	..	2 drs. of chloroform given in the bottle apparatus, 1 dr. repeated at 10 h. 27 m., and again at 11 and again at 11 h. 40 m.

I. (*f*).—*Five dogs fed with gruel at 9 a.m., and chloroformed with large doses on a cloth inhaler in the usual manner.*

Do.	366	Full-grown, large sized, powerful pariah.	10 35 30	0 0 45	0 1 19	0 1 48	0 5 24	..	..	Struggled as usual. Weight of dog 32 lb.
Do.	367	Full-grown, large-sized pariah.	10 46 30	0 0 54	0 1 38	0 2 5	0 4 40	..	..	Do. Do. 40 lb.
Do.	368	Full-grown, healthy, and large-sized pariah.	10 49 0	0 1 5	0 1 14	0 2 48	0 6 2	..	..	Do. Do. 34 lb.
Do.	369	Full-grown, healthy, large-sized pariah.	11 4 55	0 0 52	0 2 12	0 2 35	0 5 43	..	..	Struggled more than usual. Weight of dog 32 lb.
Do.	370	Full-grown, strong pariah.	11 14 30	0 1 17	0 2 23	0 11 33	0 13 18	..	..	Struggled as usual. In this case the respiration, after ceasing for 4 m., during which period the pulse could be distinctly felt, returned again and lasted for 3½ minutes. Weight of dog 38 lb.

V. (*a*).—*Artificial respiration practised in these cases, the chloroform being given in large doses on the cloth cap inhaler.*

Do.	371	Small-sized, full-grown pariah.	11 39 30	0 1 10	0 2 40	Had not stopped.	..	11 42 50	0 5 0	Artificial respiration commenced 40 s. after respiration had ceased. The dog was thought to be breathing naturally after one minute and was left alone, when the breathing ceased again and could not be re-established. Weight of dog 19 lb.
Do.	372	Ditto.	11 53 48	0 0 55	0 2 4	Do.	..	11 55 59	0 2 0	Artificial respiration was commenced 10 s. after respiration had ceased. The dog recovered. Weight of dog 23 lb.

I. (*l*).—*Monkey chloroformed in glass box* (*vide Appendix B*).

Do.	373	Small monkey	1 58 43	..	..	..	..	..	..	2 drs. of chloroform into a one-foot cube glass case containing monkey; not air tight; fell down after 2 m. 15 s.; taken out after 9 m. 50 s. and chloroform pushed on cloth cap inhaler. Cornea sensitive; great salivation; lay on his side and grabbed at imaginary objects until 2 h. 12 m. 30 s., when he jumped off the table.
Do.	374	Same.	2 12 55	..	0 3 40	Shortly after respiration.	0 5 58	..	..	Chloroformed in glass box and then taken out and the anæsthetic pushed on cloth cap inhaler. Monkey 4¼ lb. in weight.
Do.	375	Small monkey.	2 21 30	0 1 30	0 2 0	0 2 10	0 9 30	..	..	Chloroformed in the same way as before.
Do.	376	Ditto.	2 34 0	..	0 9 30	0 10 5	0 16 15	..	..	Weight of monkey 5 lb. In glass box at 2 h. 34 m. Fell down at 2 h. 35 m. 30 s. Taken out of box at 2 h. 38 m. 30 s. Cornea sensitive, but became insensible 30 s. after removal from box and administering more chloroform. Heart ceased 6 m. 10 s. after respiration stopped. Weight 4 lb.
Do	377	Ditto.	3 0 6	0 5 0	0 5 30	0 6 10	0 14 45	..	..	In glass box at 3 h. and chloroformed. Fell down at 3 h. 4 m. Taken out of box at 3 h. 4 m. 30 s., and more chloroform given. Heart ceased 9 m. 15 s. after respiration stopped. Weight 5 lb.
Do.	378	Ditto.	3 13 0	0 7 36	0 14 20	0 15 55	0 17 23	..	..	In glass box at 3 h. 13 m. and choroformed. Fell down at 3 h. 20 m. Taken out of box at 3 h. 20 m. 30 s. Weight 5 lb.
Do.	379	Ditto.	3 33 0	0 0 32	0 0 50	0 1 20	0 3 21	..	..	This monkey was asphyxiated when brought on the table owing to the noose around his neck having been drawn too tightly, and he was, after much difficulty, recovered. He was immediately after chloroformed on the table and not placed in the box. Weight of monkey 6 lb.
Do.	380	Ditto.	3 43 13	0 3 4	0 7 32	0 8 12	6 9 3	..	..	Put into the glass box at 3 h. 42 m. 13 s. Fell down at 3 h. 45 s. Taken out of box at 3 h. 45 m. 30 s. Chloroform pushed as in the other cases.
Nov. 12.	381	Young monkey.	10 23 0	0 8 30	0 11 30	0 12 50	0 14 15	..	..	Put into the glass box at 10 h. 23 m. Fell down at 10 h. 30 m., taken out of box at 10 h. 32 m. Temperature after taking him out of box 101·4° F.; temperature after death 100·4° F. Weight 5 lb.
Do.	382	Ditto.	10 54 0	0 16 12	0 17 3	0 18 7	0 23 5	..	..	Put into the glass box at 10 h. 54 m. Fell down at 11 h. 7 m. 30 s. Taken out of box at 11 h. 9 m. 4 s., and cloth inhaler placed over head. Temperature 103·2° F. when taken out of the glass box; after death 102·3° F. Weight 4 lb.

I. (*f*).—*Five dogs chloroformed with large doses in cloth inhaler after the administration of a large quantity of coffee.*

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 12	383	Full-grown, small pariah.	11 42 0	0 0 45	0 1 42	0 2 52	0 4 15	..	..	Temperature before inhalation 102° F. After death 103·2° F. Drank 12 oz. of prepared coffee at 11 o'clock. Weight 16 lb.
Do.	384	Ditto.	11 53 0	0 0 59	0 1 37	0 2 8	0 5 45	..	..	Temperature before inhalation 104° F. Had 12 oz. of prepared coffee at 11. Temperature after death 104° F. Weight 18 lb.
Do.	385	Full-sized, badly nourished pariah.	2 30 30	0 1 10	0 1 45	0 5 5	0 7 15	..	..	Temperature before inhalation 100° F. Temperature after death 100·6° F. Had about 12 oz. of coffee about 2 min. before inhalation. Weight 24 lb.
Do.	386	Under-sized, fairly nourished pariah.	2 43 0	0 1 15	0 2 30	0 3 50	0 6 35	..	..	Temperature before inhalation 102·8° F. Temperature after death 102·8° F. Had about 12 oz. of coffee half an hour before inhalation. Weight 16 lb.
Do.	387	Under-sized, badly nourished pariah.	2 55 30	0 1 30	0 2 10	0 3 45	0 4 0	..	..	Temperature before inhalation 102·5° F. Temperature after death 102·5° F. Had 12 oz. of coffee three-quarters of an hour before inhalation. Weight 19 lb.

V. (*a*).—*Artificial respiration tried in three cases, the chloroform being administered in large doses on cloth inhaler.*

Do.	388	Full-grown, large-sized pariah.	3 7 0	0 0 43	0 3 55	..	..	3 11 5	0 3 0	Struggled a great deal. Artificial respiration commenced 10 s. after respiration had ceased. Dog revived after artificial respiration had been practised for 2 m. Weight 25 lb.
Do.	389	Old, large-sized pariah.	3 20 0	0 0 52	0 4 30	..	..	3 24 50	0 3 0	Artificial respiration commenced 20 s. after respiration had ceased. The dog gasped twice, but could not be revived. Weight of dog 32 lb.
Nov. 13	390	Full-grown, small, and badly nourished pariah.	10 48 0	0 0 46	0 1 50	..	..	10 49 50	0 3 0	Artificial respiration was commenced 20 s. after breathing had ceased. Dog revived.
Do.	391	Full-grown, small-sized, badly nourished pariah.	10 57 0	0 2 10	0 6 40	..	..	11 4 10	0 1 30	Artificial respiration was commenced 30 s. after breathing had ceased. Dog revived.
Do.	392	Full-grown, well-nourished pariah.	11 9 0	0 0 52	0 5 12	..	..	11 14 47	0 6 0	Artificial respiration was commenced 35 s. after breathing had ceased, and proved unsuccessful.
Do.	393	Old, small, and emaciated pariah.	11 31 0	0 1 10	0 2 25	..	..	11 34 0	0 4 0	Artificial respiration was commenced 35 s. after breathing had ceased, and proved unsuccessful.
Do.	394	Under-sized, fairly nourished pariah.	2 40 0	0 0 45	0 1 30	..	..	2 42 0	0 6 0	Artificial respiration commenced 30 s. after respiration stopped. Gasped twice after 2 m., and ceased. Artificial respiration started again, and continued for 4 m., and proved unsuccessful.
Do.	395	Full-sized, well-nourished pariah.	2 50 0	0 0 55	0 2 5	..	..	2 52 20	0 9 0	Artificial respiration commenced 15 s. after respiration ceased, and continued for 9 m.; proved unsuccessful.
Do.	396	Ditto.	3 3 0	0 0 30	0 1 20	..	..	3 4 35	0 3 0	Artificial respiration was commenced 5 s. after the respiration had ceased. Dog revived.
Do.	397	Full-sized, healthy pariah.	3 12 45	0 1 12	0 2 35	..	..	3 15 50	0 4 0	Artificial respiration commenced 30 s. after the respiration had ceased, and proved unsuccessful.
Do.	398	Ditto.	3 27 30	0 1 17	0 2 45	..	..	3 30 50	0 1 0	Artificial respiration was commenced 35 s. after the respiration had ceased. Dog revived.
Do.	399	Small, but full-grown pariah.	2 44 30	0 2 0	0 1 30	..	..	3 43 30	0 6 0	Artificial respiration was commenced 30 s. after the respiration had ceased; unsuccessful.
Nov. 14.	400	Full-grown, small, ill-nourished pariah.	10 26 0	0 0 7	0 8 8	Not noted.	..	10 35 8	0 6 0	Chloroformed in a deal wood box 8 cubic feet capacity. Dog fell down at 10 h. 32 m. 32 s.; taken out at 3 h. 33 m. and placed on the table and some chloroform given. Artificial respiration was commenced 1 m. after breathing had ceased. A needle was put into the heart at 10 h. 41 m., and the heart was found to be contracting. Artificial respiration continued for 6 m., but proved unsuccessful.
Do.	401	Large-sized, ill-nourished pariah.	10 53 0	Not noted.	0 12 0	Not noted.	..	11 6 0	0 6 0	Chloroformed in the same manner at 10 h. 53 m. Dog fell down at 10 h. 57 m. 30 s. Taken out at 10 h. 58 m. and placed on the table and more chloroform given. Artificial respiration was commenced 1 m. after the respiration ceased. It was continued for 6 m., but proved unsuccessful.
Do.	402	Large-sized, well-nourished pariah.	11 15 0	..	0 16 10	..	..	11 31 33	0 2 0	Chloroformed in the same manner at 11 h. 15m. Dog fell down at 11 h. 23 m. 45 s. Taken out at 11 h. 26 m. 30 s., placed on table, and more chloroform given. Artificial respiration was commenced 25 s. after the breathing had ceased, and proved successful.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 14.	403	Large-sized, well-nourished pariah.	11 38 0	..	0 9 2	..	..	11 45 22	0 8 0	Chloroformed in the same way. Fell down at 11 h. 39 m. 36 s. Taken out and chloroformed on table at 11 h. 40 m. Artificial respiration was commenced 30 s. after the breathing had ceased, and proved to be unsuccessful.
Do.	404	Full-sized, ill-nourished pariah.	11 58 10	0 3 30	0 6 8	..	..	11 59 43	0 4 0	Chloroformed in the same way. Dog fell down at 11 h. 55 m. 28 s. Taken out at 11 h. 56 s., placed on the table, and chloroformed again. Artificial respiration was commenced 25 s. after the respiration had ceased, and proved unsuccessful.
Do.	405	Full-sized, well-nourished pariah, and one that had revived in a former experiment.	12 7 0	..	0 6 30	..	..	12 13 37	0 5 0	Chloroformed in the same way. Fell down at 12 h. 11 m. Taken out of box 12 h. 11 m. Artificial respiration commenced 7 s. after respiration had ceased, and proved unsuccessful.
Do.	406	Full-sized, well-nourished pariah.	2 40 0	..	0 0 5	..	..	2 45 20	0 9 0	Chloroformed in the same box. Fell down at 2 h. 43 m. Taken out at 2 h. 44 m. 0 s. and chloroformed on the table. Artificial respiration was commenced 20 s. after respiration had ceased. Dog revived.
Nov. 15.	407	Under-sized, fairly-fed pariah.	9 31 38	0 0 43	0 1 16	..	..	9 38 6	0 5 0	Struggled a great deal. Artificial respiration was commenced 12 s. after the breathing had ceased, and proved successful. Chloroform in large doses with cloth inhaler.
Do.	408	Full-grown, well-nourished pariah.	9 40 30	0 1 2	0 2 0	..	..	9 42 40	0 4 0	Struggled a great deal. Artificial respiration was commenced 10 s. after breathing had ceased and proved successful. Chloroformed in large doses with cloth inhaler.
Do.	409	Full-grown, small, and well-nourished pariah.	9 53 0	0 0 54	0 1 25	..	..	9 54 49	0 3 0	Struggled as usual. Artificial respiration was commenced 15 s. after the breathing had ceased, and proved successful. Chloroformed in large doses with cloth inhaler.
Do.	410	Under-sized, lean pariah.	10 30 0	0 1 0	0 2 4	..	..	10 15 19	0 4 0	Struggled a great deal. Artificial respiration was commenced 15 s. after the breathing had ceased, and proved successful. Chloroformed in large doses with cloth inhaler.
Do.	411	Small, full-grown, well-nourished pariah.	10 33 30	0 0 45	0 2 40	..	..	10 36 20	0 2 0	Struggled as usual. Artificial respiration was commenced 20 s. after the breathing had ceased, and proved successful. Chloroformed as in the above case.
Do.	412	Large-sized, well-nourished pariah.	10 41 0	0 1 35	0 8 12	..	..	10 49 37	0 8 0	Struggled as usual. Artificial respiration was tried 25 s. after the breathing had ceased, and found to be successful.
Nov. 18.	413	Full-sized, healthy pariah.	9 41 0	0 2 20	0 3 50	..	..	9 45 15	0 3 0	Gradual administration of chloroform on cap. Dog struggled very much. Artificial respiration 25 s. after the breathing ceased, and found successful.
Do.	414	Under-sized, badly nourished pariah.	9 50 0	0 1 20	0 2 30	..	..	9 53 0	0 10 0	Chloroform administered gradually as above. Artificial respiration by bellows began 30 s. after breathing stopped, and continued for exactly 10 m. After this needle inserted into heart; no movement. Dog struggled during inhalation. Dog died.
Do.	415	Full-sized, well-nourished pariah.	10 7 0	0 2 3	0 2 30	0 5 0	..	10 9 45	0 6 0	Chloroformed gradually as above. Artificial respiration by bellows began 15 s. after breathing stopped and continued for 6 m. No effect. Needle inserted into heart and movements of flag noted. Dog died. Dog struggled as usual during inhalation.
Do.	416	Full-sized, healthy pariah.	10 20 0	0 1 15	0 3 10	..	..	10 23 30	0 5 20	Chloroformed gradually as above. Artificial respiration in the ordinary way began 20 s. after respiration ceased, and continued for 5 m. 20 s. Dog died. Struggled a great deal during inhalation.
Do.	417	Full-grown, large-sized pariah.	10 32 0	0 7 0	0 11 18	..	..	10 43 33	0 4 0	Chloroform given in very small quantities and very gradually, with a large admixture of air. Dog revived. Artificial respiration was commenced 15 s. after the respiration had ceased. Struggled during administration.
Do.	418	Full-grown, large-sized pariah.	10 32 30	0 4 30	0 9 2	..	..	11 1 57	0 3 0	Chloroformed gradually, as in the last case. Artificial respiration was commenced 25 s. after respiration had ceased, and proved successful. Struggled during administration.
Do.	419	Full-grown, large-sized pariah.	11 8 0	0 4 12	0 7 33	..	..	11 15 38	0 5 0	Chloroform gradually given, as in the last case. Artificial respiration was commenced 25 s. after the respiration had ceased. Dog died. Struggled during administration.
Do.	420	Ditto.	11 21 0	0 2 40	0 16 2	..	..	11 37 22	0 6 0	Chloroform gradually given, as in the last case. Artificial respiration was commenced 20 s. after respiration had stopped, and proved successful.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 18.	421	Full-grown, large-sized, healthy pariah.	2 32 0	0 5 30	0 7 0	..	..	2 39 20	0 8 0	Chloroform gradually given, as in the last case. Artificial respiration commenced 20 s. after respiration had stopped. Dog died. Did not struggle much.
Do.	422	Full-grown under-sized, fairly nourished pariah.	2 51 30	0 1 45	0 4 15	..	..	2 53 0	0 1 30	Chloroformed as in the last case. Artificial respiration commenced 15 s. after respiration had ceased. Dog revived. Did not struggle very much.
Do.	423	Full-grown, well-nourished pariah.	3 0 0	0 2 30	0 9 14	..	..	3 9 34	0 3 0	Chloroform administered in small doses gradually, as in the last case. Artificial respiration was commenced 20 s. after breathing had ceased, and proved successful. Struggled as usual.
Do.	424	Ditto.	3 14 0	0 2 8	0 18 6	..	..	3 32 16	0 2 0	Struggled a great deal. Chloroform was administered as in the last case, and artificial respiration tried 10 s. after breathing had ceased. Dog revived.
Do.	425	Full-grown, well-nourished pariah.	3 36 45	0 2 55	0 11 50	..	..	3 49 5	0 3 0	Struggled as usual. Chloroformed as in the previous case. Artificial respiration was commenced 30 s. after the breathing had ceased, and proved successful. Artificial respiration continued for 3 m.
Do.	426	Ditto.	4 1 0	0 2 3	0 4 8	..	..	4 5 38	0 3 0	Struggled. Artificial respiration was commenced 30 s. after the breathing had ceased, but did not prove successful. Chloroformed with a large dose, and with little air.
Nov. 19.	427	Full-grown, fairly nourished pariah.	9 48 0	0 1 30	0 2 5	..	..	9 50 20	0 9 0	Dog struggled very much; large dose of chloroform given, with very little air. Artificial respiration commenced 15 s. after breathing had ceased. Gave several gasps after 4 m. Artificial respiration unsuccessful.
Do.	428	Ditto.	10 6 0	0 6 15	0 13 45	..	..	10 20 0	0 3 30	Chloroform given in measured doses of 1 dr. at a time. Total given 4 dr. Artificial respiration commenced 15 s. after breathing had ceased, and proved successful. The doses of chloroform administered at an interval of 4 m. between each dose. Dog struggled slightly.
Do.	429	Large-sized, full-grown, well-nourished pariah.	10 26 0	0 3 45	0 12 2	..	..	10 38 7	0 2 0	Chloroform given as in above case. Artificial respiration commenced 5 s. after the breathing had ceased. Successful.
Do.	430	The same dog chloroformed a second time as soon as the cornea became sensitive.	10 43 4	0 2 18	0 5 25	..	..	10 48 32	0 2 0	Chloroformed as in the above case, and artificial respiration commenced 5 s. after the breathing had ceased. Successful.
Do.	431	The same dog chloroformed for the third time as soon as the cornea became sensitive.	10 55 0	0 1 46	0 10 3	..	..	11 5 8	0 4 0	Chloroformed as in the last case. Artificial respiration was commenced 5 s. after the breathing had ceased, but proved unsuccessful.
Do	432	Young monkey.	11 13 0	0 0 58	0 2 0	..	..	11 15 5	0 6 0	Chloroformed as in the last case. Artificial respiration was commenced 5 s. after the breathing had ceased, but proved unsuccessful. The bellows were used in this case for artificial respiration, and found unsuitable.
Do.	433	Ditto.	11 33 0	0 1 25	0 5 0	..	..	11 38 5	0 4 0	Chloroformed as in the last case. Artificial respiration was commenced 5 s. after the breathing had ceased, and proved successful. Artificial respiration was carried on in the ordinary manner with the hands.
Do.	434	Ditto.	12 0 0	0 1 15	0 4 56	..	..	12 5 0	0 3 0	Artificial respiration was commenced 10 s. after the respiration had ceased, and was unsuccessful.
Nov. 20.	435	Ditto.	9 26 0	0 8 0	0 17 20	..	..	9 43 50	0 3 0	Chloroform administered in 1 dr. doses at intervals of five minutes, with plenty of air. Artificial respiration commenced 30 s. after the breathing had ceased. Animal revived. Total chloroform administered 3 drs.
Do.	436	Ditto.	10 23 0	0 1 15	0 1 58	..	..	10 25 23	0 2 0	Chloroform administered as in the last case. Artificial respiration commenced 30 s. after respiration had ceased. Proved successful.

VI. (*a*).—*Animals chloroformed for one hour, allowed to revive, and killed with chloroform the next day.*

Do.	437	Full-grown pariah dog.	10 5 0	..	..	..	..	..	..	Chloroformed for an hour and allowed to revive for a further observation the next day.
		Nov. 21.	10 28 0	0 0 55	0 2 4	0 2 35	0 4 55	..	..	21st.—Post-mortem made after chloroforming the animal to death. Weight 24 lb. Liver and portal system congested generally; kidneys and spleen congested. Heart: Left side distended with arterial blood, and right side venous. Lungs and trachea were normal.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 20.	438	Young monkey.	10 8 0	..	..	..	..	..	..	Ditto.
		Nov. 21.	11 19 0	0 0 58	0 1 45	0 2 40	0 4 10	..	..	Weight 5lb. Post-mortem made after chloroforming to death. Post-mortem appearances as in 437.
Do.	439	Full-grown pariah dog.	10 0 0	..	..	..	..	..	..	Ditto.
		Nov. 21.	9 57 0	0 1 0	0 2 5	0 2 45	0 5 55	..	..	21st.—Chloroformed to death and a post-mortem made. Weight 26lb. The same post-mortem appearances were noticed as in the last case.
Do.	440	Young monkey.	10 0 0	..	..	..	..	..	..	Ditto.
		Nov. 21.	11 5 0	0 1 0	0 2 3	0 2 15	0 4 35	..	..	21st.—Chloroformed to death and a post-mortem made. The same post-mortem conditions were noticed as in the last case. Weight 8lb.
Do.	441	Young monkey.	10 0 0	..	..	..	..	..	..	Ditto.
		Nov. 21.	10 34 0	0 1 0	0 2 0	0 4 6	0 6 15	..	..	21st.—Chloroformed to death, and a post-mortem made. No difference to be seen in the post-mortem appearance. Weight 8lb.
Do.	442	Full-grown, large pariah dog.	10 0 0	..	..	..	..	..	..	21st.—Chloroformed to death, and a post-mortem made. No difference to be seen in the post-mortem appearance. Weight 8lb.
		Nov. 21.	10 0 0	0 0 50	0 1 30	0 2 50	0 6 0	..	..	21st.—Chloroformed to death, and a post-mortem made. Weight 30lb. Post-mortem appearance as in the other cases.
				V. (*a*).—*Artificial respiration tried in this case.*						
Do.	443	Young monkey.	10 36 0	0 2 50	0 8 2	..	..	10 44 32	0 2 0	Chloroformed as in Experiment 436, and artificial respiration commenced 30s. after the breathing had ceased. Monkey revived.
				I. (*c*).—*Monkeys kept fasting for twenty-four hours, and chloroformed to death with large doses on cloth cap inhaler.*						
Do.	444	Young monkey.	10 50 20	0 2 1	0 6 13	0 7 0	0 10 24	..	..	The monkey was fasting for twenty-four hours. Did not struggle.
Do.	445	Ditto.	11 5 0	0 1 56	0 3 18	0 4 2	0 8 16	..	..	Ditto.
Do.	446	Ditto.	11 14 0	0 0 58	0 2 2	0 3 5	0 4 6	..	..	In this case the effect of 1 oz. of chloroform on the cap was tried. Struggled.
Do.	447	Ditto.	11 20 0	0 1 6	0 1 45	0 2 0	0 8 40	..	..	Ditto.
				V. (*a*).—*Artificial respiration tried in these cases.*						
Do.	448	Young monkey.	11 29 0	0 2 6	0 3 20	..	..	11 32 50	0 2 0	Chloroformed in 1 dr. doses every 5 m. on cloth cap, as in Case 443. Artificial respiration was commenced 30s. after the breathing had ceased, and proved successful. Did not struggle.
Do.	449	Do. Was partially choked when brought on table, and had to be revived.	11 47 0	0 1 3	0 1 52	..	..	11 49 22	0 1 50	Chloroformed as in the previous case. Artificial respiration was commenced 30s. after the breathing had ceased, and proved successful. Did not struggle.
Do.	450	Young monkey.	11 53 0	0 2 0	0 4 14	..	..	11 57 49	0 2 1	Chloroformed as in Experiment 449. Did not struggle. Artificial respiration was tried 35s. after the breathing had ceased, and proved successful.
Do.	451	Full-grown monkey.	3 11 0	0 1 50	0 5 23	..	..	3 17 3	0 4 0	Struggled a great deal. Chloroformed as in Experiment 450. Artificial respiration was commenced 40s. after the respiration had ceased, and proved successful
Do.	452	Do.	3 30 0	0 1 17	0 6 0	..	..	3 36 45	0 3 0	Struggled. Chloroform given as in Experiment 451 and artificial respiration 45s. after the respiration had ceased. Monkey revived.
				VI. (*b*).—*Animals kept under the influence of ether for one hour and chloroformed to death the next day.*						
Do.	453	Large-sized, well-nourished dog.	3 0 0	..	..	..	..	..	..	Large doses of ether administered for one hour and allowed to recover for further observation.
		November 21st.	10 17 10	0 1 3	0 1 40	0 2 5	0 9 30	..	..	21st.—Chloroformed to death by large doses of chloroform. Gasped 21 times 4 m. 30s. after respiration ceased. Did not struggle. Weight 30 lb. Post-mortem appearances — congestion of liver and portal system generally. Kidneys highly congested. The spleen was three times larger than normal and puckered. Trachea and lungs normal. Heart: right side distended with venous blood and left with arterial. The post-mortem appearances corresponded generally with those seen in the animals that had had chloroform the day before instead of ether. Vide VI. (*a*).
Do.	454	Do.	3 0 0	—	..	..	..	..	..	Large doses of ether administered for one hour and allowed to recover for further observation.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
		November 21st.	10 42 0	0 1 10	0 2 18	0 2 40	0 6 15	..	..	21st.—Chloroformed in the same manner as in the above case. Dog struggled violently. Weight 32 lb. Post-mortem appearances as in the last case, with the exception of the spleen, which was simply congested and not enlarged.
Nov. 20	455	Do.	3 0 0	..	..	..	..	..	..	Large dose of ether administered for one hour and allowed to recover for further observation.
		November 21st.	10 50 0	0 1 15	0 1 50	0 2 10	0 3 10	..	..	21st. — Chloroformed to death in the same manner as in the last case the next day. Dog struggled violently. Post-mortem appearances as in the last case. Weight 33 lb.
Do.	456	Full-grown, small-sized monkey.	3 0 0	..	..	..	..	..	..	Large dose of ether administered for one hour and allowed to recover for further observation.
		Nov. 21st.	11 27 0	0 1 10	0 3 25	0 3 43	0 5 30	..	..	21st.—Chloroformed in same manner as in above case. Struggled a little. Weight 8 lb. Post-mortem appearances as in the last case.
Do.	457	Small monkey.	3 0 0	..	..	..	..	..	..	Large dose of ether administered for one hour, and allowed to recover for further observation.
		Nov. 21st.	10 57 0	0 1 10	0 3 45	0 4 30	0 4 45	..	..	21st.—Chloroformed as in the above case. Did not struggle at all. Weight 8 lb. Post-mortem appearances as in the last case.
Do.	458	Small monkey.	3 0 0	..	..	..	..	..	..	Large dose of ether administered for one hour, and allowed to recover for further observation.
		Nov. 21st.	11 40 30	0 1 0	0 3 0	0 3 30	0 4 15	..	..	21st.—Chloroformed as above. Weight 5 lb. Post-mortem appearances as in the last case.
					V. (*a*).—*Artificial respiration tried in these cases.*					
Nov. 22	459	Medium-sized monkey.	10 0 0	0 2 0	0 12 25	..	..	10 13 5	0 1 0	Chloroform administered in small doses with plenty of air. Artificial respiration commenced 40 s. after respiration had ceased and proved successful. Weight 7 lb.
Do.	460	Small monkey.	10 17 0	0 0 55	0 1 55	..	..	10 19 35	0 13 0	Chloroformed as in above case, but with less air. Artificial respiration commenced 40 s. after respiration had ceased. Unsuccessful.
Do.	461	Medium-sized monkey.	10 25 0	0 2 0	0 6 25	..	..	10 32 10	0 1 40	Chloroformed as in above case. Artificial respiration commenced 45 s. after respiration had ceased and proved successful.
Do.	462	Medium-sized monkey, subject of Experiment 274.	10 39 0	0 1 5	0 2 15	..	..	10 42 5	0 16 0	Chloroformed as in above case. Artificial respiration commenced 50 s. after respiration had ceased. Proved successful. Weight 7 lb.
Do.	463	Full-grown monkey.	12 0 0	0 2 4	0 8 13	..	..	12 9 8	0 10 0	Chloroformed as in the above case and artificial respiration commenced 55 s. after the breathing had ceased. Artificial respiration unsuccessful. The monkey gasped four times before he died.
Dc.	464	Ditto	11 20 0	0 1 40	0 9 27	..	..	11 30 22	0 7 0	Chloroformed as in the above case, and artificial respiration commenced 55 s. after the breathing had ceased; unsuccessful.
Do.	465	Ditto	11 38 0	0 0 53	0 3 0	..	..	11 41 55	0 1 0	Chloroformed as in the above case, and artificial respiration commenced 55 s. after the breathing had ceased; monkey revived.
Dc.	466	Subject of a former experiment.	11 51 0	0 1 3	0 3 16	..	..	11 55 11	0 2 0	Chloroformed as in the above case, and artificial respiration tried 55 s. after the resp. had ceased; proved successful.
					VII.—*Administration of a definite quantity of chloroform.*					
Do.	467	Full-grown, middle-sized pariah.	2 23 0	..	..	..	..	..	..	Chloroformed in a box at 2 h. 23 m. Fell down at 2 h. 30 s. Taken out and placed on the table at 2 h. 31 m. Trachea opened and tube inserted at 2 h. 40 m. A definite quantity of chloroform and air was then administered through the bellows from a box eight cubic feet in capacity, and into which two ounces of chloroform had been placed at 2 h. 45 m. At 3 h. 45 m. the dog was found to be coming out, and another ounce was placed in the box. Needle placed in heart at 4 h. Heart stopped at 4 h. 8 m. 13 s.
Nov. 25	468	Full-grown, well-nourished pariah.	9 50 0	..	..	..	0 40 0	..	..	Chloroformed in a deal wood box at 9 h. 30 m. Fell down at 9 h. 40 m. Was taken out of the box at 9 h. 45 m. Trachea opened and tube introduced at 9 h. 50 m. Chloroform given as in the last case with bellows and from the tin box. In this case the heart ceased beating, judging from needle in thorax, at 10 h. 20 s., and commenced again after a full minute, and then ceased finally at 10.30. The time of cessation of respiration could not be noted in this nor in the last case on account of [illegible] commenced

V. (*a*).—*Artificial respiration tried in these cases.*

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 23	469	Full-grown monkey.	10 56 0	0 2 5	0 4 18	0 4 30	..	11 1 13	0 2 0	Chloroformed in large doses with cloth inhaler. Artificial respiration was commenced 55 s. after the respiration had ceased, and proved successful. Weight 6 lb.
Do.	470	Ditto	11 5 0	0 1 25	0 3 40	0 4 1	..	11 9 40	0 2 30	Chloroformed as in the last experiment, and artificial respiration commenced one minute after the respiration had ceased; the monkey revived.
Do.	471	Ditto Subject of Experiment 469.	11 18 18	0 2 0	0 4 53	Not noted.	..	11 24 11	0 6 0	Chloroformed as in the above experiment, and artificial respiration commenced one minute after the breathing had ceased. Needle in heart stopped vibrating at 11 h. 30 m.; unsuccessful.
Do.	472	Young monkey.	11 31 9	0 1 48	0 6 2	Not noted.	..	11 38 9	0 6 0	Chloroformed as in the above experiment. The respiration in this case ceased, after 3 m. 32 s., for 40 s., and commenced again. More chloroform had to be given, and he ceased breathing for the second time after 1 m. 2 s. from time of inhalation. Artificial respiration was commenced 1 m. 7 s. after the breathing had ceased, and proved unsuccessful. Needle in heart at 11 h. 42 m. found to be vibrating.
Do.	473	Ditto.	11 46 0	0 1 25	0 3 23	..	..	11 50 23	0 2 0	Chloroformed as in the above experiment. Artificial respiration was commenced one minute after the breathing had ceased, and proved successful. Struggled.

V. (*b*).—*Artificial respiration tried on dogs poisoned with phosphorus.*

Nov. 25	474	Full-grown, large pariah; has had ½ gr. of phosphorus a day since the 22nd inst.	10 18 0	0 1 0	0 2 53	..	..	10 21 33	0 6 0	Chloroformed in large doses with inhaler tightly held over face. Struggled a great deal. Artificial respiration was commenced one minute after the breathing had ceased, and proved unsuccessful; weight 30 lb. The dog gasped several times after artificial respiration had been practised for a minute. Post-mortem appearances: Liver found ruptured in three places, and the peritoneal cavity full of dark blood. Liver distinctly fatty (mottled), soft, and friable. Heart soft, mottled on surface. Endocardium pale; lung dry and non-crepitant. Lines of medullary rays in kidneys were well marked.
Do.	475	Full-grown, large-sized pariah; has had ½ gr. of phosphorus a day since 22nd inst.	10 43 0	0 1 48	0 2 18	..	..	10 46 18	0 2 0	Chloroformed as in the above experiment, and artificial respiration commenced one minute after the breathing had ceased. The dog was revived after artificial respiration had been practised two minutes. Struggled during inhalation.
Do.	476	Full-grown pariah; has had phosphorus as in the above case.	10 5 20	0 2 20	0 3 0	..	..	10 56 0	0 6 0	Chloroformed as in the last case, and artificial respiration commenced one minute after the breathing had ceased. Dog died. The needle in heart was found to be vibrating until 11 h. 3 m. 12 s. Struggled during inhalation. Weight 30 lb. Post-mortem appearances same as in No. 475, with the exception that the liver was not ruptured.
Do.	477	Ditto.	11 8 0	0 1 52	0 2 52	..	..	11 11 52	0 7 0	Chloroformed as in the last experiment. Artificial respiration was tried 1 minute after the breathing had ceased and proved unsuccessful. Weight 28 lb. Heart acted for 5 minutes after the respiration had ceased. Struggled during inhalation. Post-mortem appearances as in 476.
Do.	478	Full-grown, large pariah; was given phosphorus as in the previous cases.	11 15 0	0 2 1	0 4 1	..	..	11 22 45	0 6 0	Chloroformed as in above case, and artificial respiration tried unsuccessfully 45 s. after the breathing had ceased. Struggled a great deal. Post-mortem appearances as in 477.
Do.	479	Full-grown, large pariah; has had phosphorus as in the last case.	11 32 0	0 2 23	0 3 15	..	..	11 36 0	0 13 0	Chloroformed as in the above case. Artificial respiration was tried 45 s. after breathing had ceased. Needle thrust into the heart at 11 h. 47 m. was seen to be vibrating. Dog died at 11 h. 50 m. 5 s. Weight 22 lb. Post-mortem appearances as in 478.
Do.	480	Full-grown, large pariah; has had the same amount of phosphorus as in the previous cases.	11 51 0	0 1 53	0 2 13	..	..	11 53 51	0 3 0	Chloroformed as in the above cases, and artificial respiration tried 38 s. after the breathing had ceased. The dog revived 2 minutes after artificial respiration had been commenced.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889. Nov. 25.	481	Full-grown, large pariah; has had phosphorus as in the previous cases.	H. M. S. 12 0 0	H. M. S. 0 1 3	H. M. S. 0 2 18	H. M. S. ..	H. M. S. ..	H. M. S. 12 2 53	H. M. S. 0 6 0	Chloroformed as in 480. Artificial respiration commenced 35 s. after breathing had ceased. Dog died. Weight 35 lb. Post-mortem appearances as in 479.
		V. (*a*).—*Artificial respiration tried in these cases without the previous administration of phosphorus.*								
Do.	482	Young monkey.	3 29 0	0 1 13	0 3 56	..	..	3 33 26	0 3 0	Chloroformed in large doses with cloth inhaler tightly held over the face. Artificial respiration was commenced 30 s. after the breathing had ceased, and proved unsuccessful.
Do.	483	Ditto.	3 39 0	0 0 56	0 4 2	..	..	3 43 32	0 6 0	Ditto. Artificial respiration was commenced 30 s. after the breathing had ceased, and proved unsuccessful.
Do.	484	Ditto.	3 52 0	0 1 0	0 3 29	..	..	3 56 9	0 15 0	Ditto. Artificial respiration was commenced 30 s. after the breathing had ceased and continued 15 m.; proved unsuccessful.
Do.	485	Ditto.	4 8 0	0 1 45	0 4 0	..	..	4 12 30	0 1 0	Ditto. Artificial respiration was commenced 30 s. after the breathing had ceased, and proved successful after a minute.
		V. (*c*).—*The abdomen was opened in these cases and aromatic spirits of ammonia injected into the stomach before artificial respiration was tried.*								
Nov. 26	486	Full-sized, healthy pariah.	9 47 30	0 1 0	..	..	..	..	..	Operation of opening abdomen begun at 9 h. 50 m. Cornea sensitive at 9 h. 54 m. More chloroform at 9 h. 54 m. 10 s. Cornea insensitive, and chloroform removed at 9 h. 55 m. 30 s., 1 dr. spirits ammonia co. being injected into stomach by hypodermic syringe 9 h. 58 m. 25 s. Injection completed at 9 h. 59 m. 10 s. Pushed chloroform at 10 h. 4 m., dog being still under. Respiration ceased at 10 h. 7 m. 50 s. Artificial respiration commenced 10 h. 8 m. 20 s.; 30 s. after breathing ceased, and continued for 5 m. 40 s., and proved unsuccessful. Weight 34 lb.
Do.	487	Full-sized, healthy pariah.	10 17 0	..	—	..	..	..	..	Chloroform inhalation begun at 10 h. 17 m. Cornea insensitive 10 h. 18 m. 10 s. Respiration ceased suddenly 10 h. 19 m., and artificial respiration commenced immediately and continued for 4 m. Operation of opening abdomen begun at 10 h. 24 m. Injection of 1 dr. spirits of ammonia co. begun at 10 h. 26 m. 30 s. into stomach as in above case. Finished at 10 h. 27 m. Pushed chloroform at 10 h. 30 m., dog being still under. Respiration ceased at 10 h. 36 m. 40 s. Artificial respiration commenced at 10 h. 37 m. 0 s. after breathing had ceased and continued for 2 m. Dog revived. Weight 29 lb.
		V. (*a*).—*Artificial respiration tried.*								
Do.	488	The same dog chloroformed again.	10 46 0	0 0 53	0 3 10	..	..	10 49 40	0 2 0	Chloroformed with large doses and artificial respiration commenced 30 s. after the breathing had ceased. Unsuccessful.
Do.	489	Young monkey; weighed 6 lb.	11 1 0	0 0 58	0 2 16	—	..	11 3 46	0 4 0	Chloroformed as in the above experiment. Artificial respiration was commenced 30 s. after the respiration had ceased and proved successful.
		I. (*k*).—*Monkeys chloroformed to death after the subcutaneous injection of aromatic spirits of ammonia.*								
Do.	490	Young monkey; had 20 minims of spirits of ammonia aromatic injected under the skin at 11 h. 2 m.	11 11 0	0 1 18	0 2 16	0 2 23	0 9 23	..	..	Chloroform in large doses till death occurred. Weight 6 lb.; gasped twice before the heart stopped.
Do.	491	Young monkey; had 20 minims of spirits of ammonia co. injected under the skin at 11 h. 12 m.	11 21 0	0 0 43	0 1 59	0 2 0	0 7 0	..	..	Idem. Weight 8 lb.
Do.	492	Full grown monkey; had 20 minims of spirits of ammonia aromatic injected at 11 h. 20 m.	11 28 0	0 1 18	0 2 53	Not noted.	0 10 12	..	..	Idem. Weight 12 lb.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 23.	493	Full-grown monkey; had 20 minims of spirits of ammonia aromatic at 11 h. 25 m.	11 35 0	0 1 12	0 2 27	0 2 48	0 15 0	..	..	Idem. Weight 12 lb.
Do.	494	Full-grown monkey, small size; had 20 minims of spirits of ammonia co. at 2 h. 45 m.	2 50 0	0 1 0	0 1 30	0 2 10	0 4 0	..	..	Do. Weight 5 lb.
Do.	495	Young monkey; had 20 minims of spirits of ammonia co. at 2 h. 55 m.	3 0 0	0 1 0	0 2 10	0 3 30	0 5 50	..	..	Do. Respiration returned 35 s. after it ceased and continued for 1 m., after which it ceased entirely.
V. (*a*).—*Artificial respiration tried.*										
Do.	496	Young monkey.	3 14 0	0 0 56	0 1 58	..	..	3 16 28	0 5 0	Chloroformed by 1 dr. doses at a time, the monkey being in the erect position. Artificial respiration was commenced 30 s. after the breathing had ceased, the monkey having been inverted before it was begun. Unsuccessful. The heart stopped beating seven minutes after inhalation. Weight 6 lb.
Do.	497	Ditto.	3 30 0	0 1 5	0 2 11	..	..	3 32 41	0 14 0	Ditto. Artificial respiration commenced 30 s. after the breathing had ceased. The monkey, being inverted, proved unsuccessful. A needle in the heart was found to be vibrating 15 m. after inhalation.
Do.	498	Ditto.	3 57 0	1 4 0	0 3 0	..	..	4 0 30	0 4 0	Ditto. Artificial respiration was commenced 30 s. after the breathing had ceased, the monkey having been inverted, and proved successful.
I. (*m*).—*Monkeys chloroformed to death in the erect position and with large doses on cloth inhaler.*										
Do.	499	Full-grown monkey.	10 37 0	0 1 30	0 5 0	0 9 30	0 11 15	..	..	Chloroformed in the erect position, and the anæsthetic pushed until death occurred.
Do.	500	Small monkey.	10 55 0	0 1 20	0 3 30	0 5 0	0 6 0	..	..	Do. Do. Weight 5 lb.
Do.	501	Ditto.	11 5 0	0 1 0	0 2 46	0 3 5	0 4 6	..	..	Do. Do. do.
Do.	502	Ditto.	11 13 30	0 1 5	0 1 50	0 3 15	0 3 58	..	..	Ditto. The thorax was opened in this case, and the heart seen to have stopped immediately after the needle in that organ ceased to vibrate. Weight 5 lb.
Do.	503	Young monkey.	11 27 0	0 0 52	0 4 18	0 4 23	0 4 40	..	..	Do. Do. Weight 8 lb.
Do.	504	Ditto.	11 43 30	0 1 0	0 6 2	0 6 23	0 10 12	..	..	Do. Do Weight 6 lb.
V. (*a*).—*Artificial respiration tried in these cases.*										
Do.	505	Ditto.	11 57 0	0 1 5	0 5 16	..	..	12 2 46	0 5 0	Chloroformed in the recumbent position with large doses and inverted before artificial respiration was begun. Artificial respiration was commenced 30 s. after the breathing had ceased, and proved ineffectual. Weight 7 lb.
Nov. 27.	506	Ditto.	2 51 0	0 1 15	0 5 0	..	..	2 56 30	0 2 0	Chloroformed as above. Proved unsuccessful. Artificial respiration commenced after 30 s. and continued for 2 m.
Do.	507	Full-grown monkey.	3 7 0	0 1 45	0 5 15	..	..	3 13 0	0 7 0	Chloroformed as above. Artificial respiration commenced after 45 s. and continued for 7 m. unsuccessfully.
Do.	508	Young monkey.	3 20 0	0 0 54	0 5 0	..	..	3 28 45	0 4 0	Chloroformed as in the above case, and artificial respiration commenced 45 s. after the breathing had ceased. Successful.
Do.	509	Ditto.	3 32 0	2 44 0	0 6 2	..	..	3 38 22	0 3 0	Chloroformed as in the above case. Struggled a great deal. Artificial respiration was commenced 20 s. after the breathing had ceased, and proved successful. Weight 8 lb.
Do.	510	The same monkey after he had revived.	3 44 0	0 0 42	0 1 14	..	..	3 45 44	0 6 0	Chloroformed as in the above case. Artificial respiration was commenced 30 s. after the breathing had ceased. Unsuccessful.
Do.	511	Full-grown monkey.	3 55 0	0 2 18	0 5 16	..	..	4 1 16	0 2 0	Chloroformed as in the last experiment. Artificial respiration was commenced 1 m. after the breathing had ceased, and found unsuccessful.
V. (*b*).—*Artificial respiration tried on dogs sick from phosphorus poisoning.*										
Nov. 20.	512	Dog sick from phosphorus poisoning. Had 1 gr. of phosphorus daily for three days from 15th inst.	10 23 0	0 1 40	0 4 15	..	..	10 27 40	0 2 0	Struggled. Artificial respiration was commenced 25 s. after the breathing had ceased, and succeeded in reviving the dog.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Nov. 30.	513	Ditto.	10 30 0	0 1 16	0 2 4	..	..	10 32 44	0 1 30	Struggled. Artificial respiration was commenced 40 s. after the breathing had ceased, and proved successful.
Do.	514	Ditto.	10 47 0	0 1 10	0 2 14	..	..	10 50 4	0 7 0	Struggled a great deal. Artificial respiration was commenced 50 m. after breathing had ceased. Dog died. Post-mortem appearances: Liver ruptured. It was soft, friable, and mottled, and distinctly fatty. Heart paler than usual.
		V. (*e*).—*Three dogs sick from phosphorus poisoning etherised and artificial respiration tried on them.*								
Do.	515	Ditto.	11 3 0	0 2 16	0 6 18	..	..	11 9 43	0 6 0	Struggled. Artificial respiration was commenced 25 s. after the respiration had ceased, and proved unsuccessful.
Do.	516	Ditto.	11 35 0	0 1 45	0 12 10	..	..	11 47 40	0 2 0	Dog struggled much. Artificial respiration commenced 30 s. after respiration ceased, and continued for 2 m. Proved successful.
Do.	517	Ditto.	3 44 0	0 1 25	0 8 3	..	..	3 52 53	0 6 0	Artificial respiration was commenced 50 s. after the respiration had ceased. Dog died.
		III. (*g*).—*Twelve dogs injected with cocaine into the peritoneum about 10 minutes before being chloroformed to death with large doses on cloth inhaler.*								
Dec. 2.	518	Full-grown, well-nourished pariah.	10 40 0	0 1 10	0 2 10	0 4 5	0 6 10	..	..	Struggled. Cocaine, ¼ gr., injected at 10 h. 30 m.
Do.	519	Ditto.	11 1 0	0 1 23	0 2 18	0 4 20	0 8 13	..	..	Struggled very much. Cocaine, ¼ gr., injected at 10 h. 30 m.
Do.	520	Full-grown, thin pariah.	11 11 0	0 1 11	0 2 30	0 3 24	0 8 0	..	..	Struggled very much. Cocaine, ½ gr., injected at 11 h.
Do.	521	Small-sized, full-grown pariah.	11 29 0	0 2 0	0 2 40	0 2 50	0 6 10	..	..	Did not struggle. Injected with ¼ gr. of cocaine at 11 h. 20 m.
Do.	522	Full-grown, lean pariah.	11 43 30	0 1 0	0 3 56	0 5 18	0 9 2	..	..	Struggled. Cocaine, 1 gr., injected at 11 h. 35 m.
Do.	523	Emaciated, full-grown pariah.	11 55 0	0 1 5	0 6 24	0 6 28	0 10 38	..	..	Struggled. Cocaine, 1 gr., injected at 11 h. 45 m.
Dec. 3.	524	Undersized, ill-nourished pariah.	10 0 0	0 0 52	0 1 50	0 2 12	0 5 20	..	..	Cocaine, 1½ gr., injected at 9 h. 45 m. inhalation. Dog struggled.
Do.	525	Full-sized, well-nourished pariah.	10 9 0	0 1 5	0 1 35	0 1 50	0 5 58	..	..	Cocaine, 1½ gr., injected at 9 h. 58 m. Dog struggled.
Do.	526	Full-grown, powerful pariah.	10 33 0	0 0 50	0 1 40	0 1 58	0 6 5	..	..	Cocaine, 1½ gr., injected at 10 h. 23 m. Gave great trouble in being chloroformed. Struggled a great deal, and had to be held down with much force.
Do.	527	Full-grown, middle-sized pariah.	3 57 30	0 1 40	0 4 30	0 5 0	0 8 28	..	..	Cocaine, 2 gr., injected at 2 h. 43 m. Dog struggled.
Do.	528	Full-grown, well-nourished pariah.	3 9 0	0 0 43	0 2 0	0 2 23	0 8 13	..	..	Cocaine, 2 gr., injected at 2 h. 54 m. Did not struggle.
Do.	529	Full-grown, small-sized, pariah.	3 24 0	0 1 14	0 2 13	0 3 6	0 5 33	..	..	Cocaine, 2 gr., injected at 3 h. 6 m. Shortly after the injection the dog became excited. He was then seized with convulsions; fell down at 3 h. 15 m. Did not struggle during the experiment.
		III. (*h*).—*Twelve dogs injected with strychnine before being chloroformed to death with large doses on cloth inhaler.*								
Dec. 3.	530	Full-grown, well-nourished pariah.	3 39 0	0 1 2	0 1 40	0 2 5	0 4 3	..	..	Strychnine, $\frac{1}{10}$ gr., injected at 3 h. 35 m. Struggled.
Do.	531	Ditto.	3 47 0	0 1 41	0 3 0	0 0 32	0 6 18	..	..	Strychnine, $\frac{1}{10}$ gr., injected at 3 h. 35 m. Struggled.
Do.	532	Ditto.	4 2 0	0 0 59	0 1 42	0 2 18	0 5 31	..	..	Strychnine, $\frac{1}{10}$ gr., injected at 3 h. 43 m. Struggled severely.
Do.	533	Full-grown, large-sized pariah.	4 15 0	0 0 54	0 1 43	0 1 51	0 6 33	..	..	Strychnine, $\frac{1}{10}$ gr., injected at 4 h. 6 m. Struggled.
Do.	534	Full-grown, well-nourished pariah.	4 23 0	0 0 48	0 1 52	0 2 0	0 5 30	..	..	Strychnine, $\frac{1}{10}$ gr., injected at 4 h. 12 m. Struggled.
Dec. 4.	535	Full-grown, powerful pariah.	10 15 0	0 1 15	0 1 40	0 2 0	0 4 44	..	..	Strychnine, $\frac{1}{10}$ gr., injected at 10 h. 6 m. Struggled very hard. Gasped after the respiration had ceased, and before the heart stopped acting.
Do.	536	Full-grown, small pariah.	10 55 0	0 0 58	0 1 23	0 2 16	0 3 2	..	..	Strychnine, $\frac{1}{10}$ gr., injected at 10 h. 45 m. Muscles rigid, and symptoms of strychnine poisoning commencing when brought on table.
Do.	537	Full-grown, well-nourished pariah.	11 3 0	0 1 18	0 2 4	0 2 17	0 6 0	..	..	Strychnine, $\frac{1}{10}$ gr., injected at 10 h. 55 m. Brought on table with symptoms of strychnine poisoning.
Do.	538	Full-grown, small pariah.	11 12 0	0 0 30	0 2 0	0 2 8	0 4 10	..	..	Strychnine, $\frac{1}{10}$ gr., injected at 11 h. 5 m. Became convulsed at 11 h. 9 m. from strychnine poisoning, and was chloroformed in this condition.
Do.	539	Full-grown, large-sized pariah.	11 16 0	0 0 32	0 2 58	0 3 6	0 5 23	..	..	Strychnine, ¼ gr., injected at 11 a. 15 m. Tetanic convulsions set in in a minute's time, and the dog was at once chloroformed.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Dec. 4.	540	Full-grown pariah.	11 20 0	0 0 45	0 0 53	0 1 56	0 5 0	..	..	Strychnine, ½ gr., injected at 11 h. 18 m. Tetanic convulsions set in in 1½ minutes 1st time, and the dog was chloroformed in this condition. Gasped 13 times before the heart ceased to beat.
Do.	541	Full-grown, small-sized pariah.	11 33 0	0 0 42	0 2 12	0 3 7	0 6 53	..	..	Strychnine, ½ gr., injected at 11 h 23 m. Chloroformed during convulsions.

III. (*i*).—*Atropine injected in these cases before the dogs were chloroformed to death with large doses on cloth inhaler.*

Do.	542	Ditto.	11 41 0	0 1 53	0 2 10	0 3 18	0 5 53	..	..	Atropine, $\frac{1}{75}$ gr., injected at 11 h. 30 m. Struggled.
Do.	543	Full-grown, well-nourished pariah.	11 46 0	0 0 58	0 2 33	0 4 0	0 6 2	..	..	Atropine, $\frac{1}{75}$ gr., injected at 11 h. 35 m. Dog struggled.
Do.	544	Full-grown, small pariah.	11 52 0	0 0 53	0 3 0	0 3 15	0 4 7	..	..	Atropine, $\frac{1}{75}$ gr., injected at 11 h. 40 m. Dog struggled.
Dec. 5	545	Full-grown, well-nourished pariah.	10 13 0	0 1 15	0 2 45	0 3 11	0 4 34	..	..	Atropine, $\frac{1}{75}$ gr., injected at 10 h. 3 m. Dog struggled during administration.
Do.	546	Full-grown, large, but emaciated pariah.	10 19 0	0 43 0	0 1 0	0 1 28	0 3 33	..	..	Atropine, $\frac{1}{75}$ gr., injected at 10 h. 7 m. Struggled during the administration, gasped before the heart stopped beating.
Do.	547	Full-grown, fair-sized pariah.	10 28 0	0 1 21	0 3 23	0 3 47	0 5 59	..	..	Atropine, $\frac{1}{75}$ gr., injected at 10 h. 16 m. Dog struggled.
Do.	548	Full-grown, badly nourished pariah.	10 37 0	0 1 1	0 1 46	0 2 0	0 4 46	..	..	Atropine, $\frac{1}{75}$ gr., injected at 10 h. 23 m. Dog struggled. Gasped before death.
Do.	549	Full-grown, emaciated pariah.	10 44 0	0 1 9	0 1 38	0 2 2	0 4 16	..	..	Atropine, $\frac{1}{75}$ gr., injected at 10 h. 35 m. Struggled during the administration.
Do.	550	Large-sized, badly nourished pariah.	10 50 0	0 0 42	0 1 13	0 1 20	0 5 12	..	..	Atropine, $\frac{1}{75}$ gr., injected at 10 h. 38 m. Struggled. Gasped before death occurred.
Do.	551	Large-sized, well-nourished pariah.	11 0 0	0 1 16	0 2 18	0 2 50	0 5 0	..	..	Atropine, $\frac{1}{75}$ gr., injected at 10 h. 48 m. Dog struggled.
Do.	552	Fair-sized, well-nourished pariah.	11 8 0	0 0 48	0 1 36	0 1 42	0 6 18	..	..	Atropine, $\frac{1}{75}$ gr., injected at 10 h. 55 m. Struggled very much. Gasped three times before the heart stopped.
Do.	553	Small-sized, very emaciated pariah.	11 13 0	0 1 2	0 1 28	0 1 32	0 2 20	..	..	Atropine, $\frac{1}{75}$ gr., injected at 11 h. Struggled in the usual way. As soon as the needle ceased to vibrate, the thorax was opened, and the heart seen to have stopped acting. A post-mortem examination was made, and the heart and other organs found healthy.

V.—*Morphine injected in these cases and artificial respiration tried.* (*The chloroform was administered in the usual way on cloth cap inhaler.*)

Do.	554	Large-sized, powerful pariah.	11 6 0	0 1 43	0 3 0	..	11 9 30	0 8 0	..	Morphine, ½ gr., injected at 11 h. 52 m. Dog excited when brought on table and struggled very much during the administration of chloroform. Artificial respiration was commenced 30 s. after the breathing had ceased.
Do.	555	Full-grown, well-nourished pariah.	3 40 0	0 0 48	0 1 33	..	..	3 42 3	0 5 0	Morphine, ½ gr., injected at 3 h. 30 m. Artificial respiration was commenced 30 s. after the breathing had ceased. Needle in heart at 3 m. 47 s. ceased to vibrate; unsuccessful. Struggled during administration.
Do.	556	Large-sized, full-grown pariah.	3 51 0	0 1 0	0 2 11	..	..	3 53 41	0 7 0	Morphine, ½ gr., injected at 3 h. 37 m. Artificial respiration was commenced 30 s. after the breathing had ceased. Dog struggled during the administration. Needle in heart at 4 h. ceased to vibrate; unsuccessful.
Do.	557	Full-grown, fair-sized pariah.	4 0 0	0 0 53	0 1 11	..	..	4 1 31	0 4 0	Morphine, ½ gr., injected at 3 m. 50 s. Struggled during the administration. Artificial respiration was commenced 20 s. after the breathing had ceased; successful.
Do.	558	Full-grown, well-nourished pariah.	4 10 0	0 0 56	0 2 0	..	..	4 12 20	0 5 0	Morphine, ½ gr., injected at 4 h. Struggled. Artificial respiration was commenced 20 s. after the breathing had ceased. Needle in heart at 4 h. 17 m. did not vibrate; unsuccessful.
Do.	559	Full-grown well-nourished pariah.	4 21 0	0 1 13	0 2 17	..	..	4 23 37	0 5 0	Morphine, ½ gr., injected at 4 h. 9 m. Struggled. Artificial respiration was commenced 20 s. after the breathing had ceased. Needle in heart at 4 h. 28 m. did not vibrate.
Do.	560	Full-grown, fair-sized pariah.	4 32 0	0 0 57	0 3 14	..	..	4 35 29	0 4 0	Morphine, ½ gr., injected at 4 h. 20 m. Struggled. Artificial respiration was commenced 15 s. after the breathing had ceased; successful.
Do.	561	Full-grown, emaciated pariah.	4 41 0	0 1 5	0 5 52	..	..	4 47 17	0 3 0	Morphine, ½ gr., injected at 4 h. 30 m. Struggled Artificial respiration was commenced 15 s. after the breathing had ceased; successful.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Dec. 5	562	Full-grown, large pariah, well-nourished.	4 52 0	0 1 3	0 1 23	..	..	4 53 38	0 6 0	Morphine, ¼ gr., injected at 4 h. 40 m. Artificial respiration was commenced 15 s. after the breathing had ceased. Dog struggled; unsuccessful.
Dec. 6	563	Full-grown, well-nourished pariah.	10 40 0	0 0 57	0 3 6	..	..	10 43 35	0 10 0	Morphine, ¼ gr., injected at 10 h. 25 m. Struggled. Artificial respiration was commenced 30 s. after the breathing had ceased; unsuccessful.
Do.	564	Full-grown, fair-sized pariah.	11 57 0	0 1 9	0 2 2	..	..	11 59 32	0 6 0	Morphine, ¼ gr., injected at 10 h. 38 m. Struggled. Artificial respiration was commenced 30 s. after the breathing had ceased. Successful. This dog died 2 m. after it was taken outside and left alone.
Do.	565	Full-grown, well-nourished pariah.	11 7 0	0 1 10	0 2 26	..	..	11 9 56	0 4 0	Morphine, ¼ gr., injected at 10 h. 50 m. Struggled. Artificial respiration was commenced 30 s. after the respiration had ceased. Needle in heart at 11 h. 16 m. ceased to vibrate. Unsuccessful.
V. (*b*).—*Artificial respiration tried on a dog poisoned with phosphorus, the chloroform being administered in the usual manner.*										
Dec. 7	566	Full-grown, well nourished pariah, ill from phosphorus poisoning.	10 49 0	0 0 58	0 2 5	..	..	10 51 35	0 12 0	1 gr. of phosphorus given every morning for three days (3rd, 4th, 5th). Did not struggle. Artificial respiration was commenced 30 s. after the breathing had ceased; unsuccessful.
I. (*n*).—*Dogs chloroformed to death with small doses on cloth inhaler.*										
Dec. 9	567	Under-sized, ill-nourished pariah.	10 32 0	0 0 55	0 2 55	0 3 0	0 6 10	..	..	Chloroform administered gradually, on a cap with plenty of air. Dog struggled as usual. Gasped twelve times before heart ceased, the last gasp at 10 h. 36 m. 15 s., or 1 m. 55 s. before heart ceased beating. Weight, 20 lb.
Do.	568	Full-sized, fairly nourished pariah.	10 40 20	0 1 50	0 3 50	0 6 40	0 8 50	..	..	Chloroformed as in the above case. Dog struggled slightly. Weight, 26 lb.
Do.	569	Full-sized, well-nourished pariah.	10 51 0	0 1 40	0 4 50	0 5 2	0 9 40	..	..	Chloroformed as in the above case. Dog struggled very much. Weight, 25 lb.
Do.	570	Full-sized, well-nourished pariah.	11 4 30	0 0 45	0 2 30	0 2 35	0 6 10	..	..	Chloroformed as in the above case. Dog struggled as usual. Gave one long gasp at 11 h. 6 m. 45 s., or 3 m. 55 s. before heart ceased. In this case the needle ceased vibrating at 11 h. 9 m. 15 s., when the thorax was opened and the heart found to be contracting until 11 h. 10 m. 40 s.
Do.	571	Full-grown, well-nourished pariah.	11 14 0	0 1 0	0 18 31	0 19 14	0 26 35	..	..	Chloroformed in small doses gradually given with plenty of air in cloth cap. Struggled. Thorax opened in this case, and the action of the heart watched to the end. Weight, 28 lb.
Do.	572	Full-grown, small-sized pariah.	11 40 0	0 2 29	0 4 32	0 5 4	0 7 52	..	..	Chloroform given as in the above case. Struggled feebly. Thorax opened, and the heart's action watched to the end. Weight, 20 lb.
Do.	573	Ditto	11 51 0	0 1 23	0 8 13	0 9 0	0 13 28	..	..	Chloroformed as in the previous case. Struggled. Thorax opened after the needle ceased to vibrate, and the heart found to have stopped acting. Weight, 17 lb.
Do.	574	Small and emaciated pariah.	12 17 0	0 1 11	0 4 40	0 5 3	0 8 6	..	..	Chloroformed as in the previous case. Struggled. Thorax opened after the needle ceased vibrating, and the heart's action stopped. Weight, 15 lb.
Do.	575	Small, but full-grown, pariah.	3 13 0	0 1 13	0 11 3	0 11 55	0 18 22	..	..	Chloroformed in a similar manner. Struggled. Thorax opened after the needle ceased to vibrate. Weight, 17½ lb.
Do.	576	Full-grown, large-sized pariah.	3 36 0	0 1 28	0 3 47	0 3 59	0 7 4	..	..	Chloroformed in a similar manner. Struggled very much. Thorax opened after the needle ceased to vibrate. Weight, 28 lb.
Do.	577	Full-grown, well-nourished pariah	3 45 0	0 2 16	0 3 0	0 3 15	0 7 11	..	..	Chloroform administered as in the previous case. Struggled. Gasped before the heart ceased to beat. Thorax opened after the needle ceased to vibrate. Weight, 21¾ lb.
Do.	578	Full-grown, large-sized pariah.	3 56 0	0 1 2	0 10 8	0 10 24	0 14 3	..	..	Chloroformed in the same way. Struggled. Weight, 35 lb.
Do.	579	Full-grown, small, and emaciated pariah.	11 6 0	0 3 42	0 8 13	0 8 32	0 12 9	..	..	Chloroformed as in 578. Struggled. Thorax opened after the needle ceased to vibrate. Weight, 20 lb.
Do.	580	Full-grown, well-nourished pariah.	11 20 0	0 1 10	0 3 54	0 6 2	0 6 53	..	..	Chloroformed as in the above case. Struggled severely, and had to be held down with great force. Weight, 29 lb.
Do.	581	Full-grown, well-nourished pariah.	3 3 0	0 1 52	0 8 4	0 9 0	0 12 8	..	..	Chloroform given as in the above case. Struggled severely, and had to be held down with force.

Date.	No.	Description of dog.	Time at which inhalation commenced.	Cornea became insensible after—	Respiration ceased after—	Pulse stopped after—	Heart ceased beating after—	Artificial respiration commenced at—	Artificial respiration continued for—	Remarks.
1889.			H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	
Dec. 11	582	Full-grown, well-nourished pariah.	10 37 0	0 0 58	0 2 15	0 3 3	0 7 14	..	..	Chloroformed in small doses on cloth cap inhaler. Struggled very much, and had to be held down forcibly. Weight, 30 lb.
Do.	583	Ditto.	10 47 0	0 1 33	0 4 18	0 4 56	0 10 21	..	..	Chloroformed similarly. Struggled. Weight, 26 lb.
Do.	584	Full-grown, small pariah.	11 1 0	0 1 0	0 4 6	0 4 23	0 13 42	..	..	Chloroformed similarly. Struggled. Weight, 19 lb.
Do.	585	Full-grown, large pariah.	11 16 0	0 1 7	0 2 5	0 2 47	0 8 50	..	..	Chloroformed similarly. Struggled. Weight, 35 lb.
Do.	586	Full-grown, well-nourished pariah.	11 27 0	0 1 47	0 4 31	0 4 52	0 8 16	..	..	Chloroformed similarly. Struggled very much. Gasped before heart ceased beating. Weight, 32 lb.
Do.	587	Ditto.	11 37 0	0 2 51	0 8 41	0 8 59	0 12 4	..	..	Chloroformed similarly. Struggled. Weight, 31 lb.
Do.	588	Ditto.	11 53 0	0 2 2	0 5 53	0 6 0	0 15 31	..	..	Chloroformed similarly. Struggled. The respiration returned in this case at 12 h. 2 m., and continued for 3 m., when the chloroform was renewed in the cap. Weight, 28 lb.

REPORT OF THE LANCET

Special Sanitary Commission

ON

PUBLIC ACTION IN RESPECT OF COMMON LODGING-HOUSES.

THE EDINBURGH LODGING-HOUSES AND CITY IMPROVEMENTS.

No. IV.

IN dealing with the general question of the housing of the poor, and more particularly with common lodging-houses, Edinburgh may be considered as the antithesis of Glasgow. The problem in the two towns is different, and the solution attempted also differs. The overcrowding at Edinburgh was not due to a sudden, irresistible influx of countless strangers; of poverty-stricken, unskilled labourers from Ireland and the Highlands, all anxious to profit by the rapid industrial progress of a great manufacturing centre. Edinburgh is not an industrial and commercial town. It is a great seat of learning, and the letting of lodgings to students and others is one of the principal occupations of the native population. The overcrowding was due not so much to poverty and a phenomenal increase of population, as to the fact that Edinburgh was a walled city, and, its size being restricted by its fortifications, there was not room enough to build broad streets. As the city walls, crumbling with age, disappeared, the burgesses of Edinburgh began to realise that the foe was from within and not from without. Means of defence had to be devised, not against armed aggression, but against the spread of epidemic disease and the frequency of premature death. Simultaneously with their neighbours at Glasgow, they introduced a Bill in Parliament to authorise a scheme for the improvement of the city of Edinburgh. Having received the sanction of the Legislature, under the title of the City of Edinburgh Improvement Act of 1867, the trustees appointed by this Act spent, in all, £550,000 in clearing and improving unwholesome areas. The Act empowered them to borrow £350,000, and to increase the assessment throughout the city to the extent of 4*d.* in the pound sterling. By this increase of taxation, sufficient money was raised to enable the trustees to effect the desired improvements without borrowing more than £250,000. Being in command of the necessary financial means, streets were enlarged and some of the worst rookeries destroyed. Altogether about 3000 houses were pulled down and some 14,000 persons displaced. The authorities maintain that no difficulty was experienced in finding new quarters for the persons thus compelled to remove—a fact which would prove that Edinburgh enjoys facilities which are not so readily obtained in large manufacturing centres. Throughout, the Edinburgh trustees seemed animated by a less venturesome spirit than that which has characterised Glasgow. The one great object of the Edinburgh trustees has been to put an end, as rapidly as possible, to their responsibility, and not to attempt even the very mild ventures that are not only sanctioned but actually encouraged and suggested by the Edinburgh City Improvements Act. In following this timid though, if viewed from a purely business standpoint, very correct policy, the Edinburgh City Trustees have been eminently successful. What with the receipts obtained from the increased assessment of the town and the produce of the sale of the building sites created by the destruction of unwholesome property, the whole of the £250,000 borrowed has been refunded, and the accounts were finally closed last September, leaving in the hands of the trustees a small surplus of £8000 in cash, though, on the other hand, there remained little or no property. Thus the accounts are satisfactorily balanced, but the operations under the Act are now terminated; the chapter of improvements is closed; nothing more can be done unless a fresh Act is obtained from Parliament. Were it not for the fact that Edinburgh possesses a medical officer of health of exceptional ability, and a sanitary authority that has displayed the greatest energy, much of the new property created by these improvements would relapse into that condition of insalubrity which rendered the intervention of the Legislature necessary.

Foreseeing the possible difficulty of housing the poor who would be driven from their homes by the contemplated destruction of unwholesome property, a clause in the Improvements Act gave the Edinburgh trustees the power to spend at their discretion £10,000 in providing suitable houses for these people. The sum was small, still it sufficed to enable the trustees to give an example which the owners of private property would in time have been compelled to follow, just as in Glasgow private enterprise is now seeking to copy the excellent disposition and organisation of the common lodging-houses built by the Glasgow trustees. Also there is little doubt but that the sum might have been increased. Indeed, we see no reason why Edinburgh should not have enjoyed the same freedom of action as Glasgow, except it be that, in this respect, the Edinburgh authorities did not wish to act. This latter conviction was forced upon us by the conversations we held with various members of the City Trust, and by the record of what has been done. Instead of asking for more than £10,000, the trustees did not spend even this small sum. They only erected four tenement houses, and these in such a manner that they were in no wise suited to the poor people of the neighbourhood, who had been evicted in order to carry out the city improvements. These tenement houses cost only £7000, and were at once inhabited by a much higher class of occupiers—a class of people, in fact, who can always be housed fairly well without the necessity of intervention on the part of the authorities. No sooner had these comparatively high-class tenants been secured than terms were offered to them by which they could buy and become the permanent owners of their tenements. Thus the trustees sold off the property they had created, got their money back, balanced their

accounts very neatly, but scarcely touched, and certainly in nowise solved, the great problem of the housing of the poor.

Public health has improved at Edinburgh, not because the municipality has built new model houses, but because the sanitary authorities have enforced the placing of new drains in old houses, have insisted on the compulsory notification of infectious disease, and, generally speaking, have exercised a wise and energetic supervision over the town. Nevertheless, many dark places still remain, and at Edinburgh, as elsewhere, we have the sorry spectacle of the extreme poor paying dearer in proportion for what they get than the classes possessing ample means. The common lodging-houses, where so large a proportion of these very poor people are compelled to live, have, in the absence of any action by the public authorities, remained in the normal condition. Of course, they are under sanitary supervision just as the common lodging-houses in London are subject to inspection; but the inspectors display a tender regard for vested interests which clash with the interests of public health. For instance, one common lodging-house we visited ought certainly to have its licence withdrawn. Ascending very small and almost perpendicular stone stairs that rose direct from the street pavement, we penetrated the bedrooms. The bedclothes would not be adequately depicted if described as dirty—they were black. In London lodging-houses each bed has the necessary night convenience; but this is rarely provided in Scotland. An ordinary metallic slop-pail is placed in a corner of the room, with the result that the floor is often soiled, and in this instance there were evident traces of urine soaking into the boards. But, on the ground floor, we found a condition of affairs which certainly should not be tolerated. The front part, with windows looking on to the street, constituted the common kitchen, a very small and unsuitable kitchen. At a little distance from the window a wooden partition was set up, and behind this were six double beds where men slept in couples. On the other side there was another partition, and beyond that the room occupied by the woman who keeps the lodging-house. The lodgers placed between the kitchen and this last-mentioned room had neither light nor air save what could be borrowed from the kitchen or the bedroom giving on to the back. Of course the place smelt very close, and must often be in an absolutely unwholesome condition. The sanitary authorities do not pretend for a moment that it is right and proper to keep such a place open; but they respect the vested interest of the woman who created this lodging-house before modern ideas of sanitation were widely approved. When she disappears the licence will be withdrawn.

Entering so low a passage that it was necessary to stoop, we visited one other very wretched small common lodging-house, where we found in the dark, damp kitchen some of the poorest and most miserable-looking women engaged washing ragged clothes and linen. The one closet was situated outside, and was in a dirty, neglected state; the house was itself so closely built round that it could not receive any good air, and its general condition was so gloomy and dilapidated that it must have produced a depressing and deteriorating effect on its inmates. In another lodging-house single rooms were let out to two married couples. The two beds were separated by a screen, and this was supposed to ensure privacy—a system which doubtless would be efficacious on condition that the lodgers were all both deaf and dumb. There were here also dormitories for single lodgers and a small common kitchen. But it is not necessary to enter into very full details to show that the condition of the common lodging-houses in Edinburgh is unsatisfactory. This has often been pressed upon the attention of the Corporation, and is very generally admitted. Still the authorities, heedless of the example given by Glasgow, urge, in self-defence, that common lodging-houses are better managed by private enterprise, and at last private enterprise has taken up the cause of lodging-house reform.

The Edinburgh Model Lodging-house Company, Limited has been constituted, with a capital of £10,000, and has acquired a large property in the Grass market, which had been erected in 1875 on the site of the old Templar lands demolished by the Improvements Trust. This property has now been converted into what, it was fondly imagined, would prove to be the most perfect common lodging-house in existence. Far from being perfection, however, the authorities, in spite of their desire to encourage private enterprise, have been compelled to refuse to license the premises. Of course we made a point of carefully inspecting this model lodging-house. It was certainly elegantly, even luxuriously fitted up, but in a manner that betokened more knowledge of modern æsthetics than of sanitary engineering. On entering we were at once impressed by the Botticelli tone of the green dado that ornamented the wall. Then there is a picturesque store-room at the end of the large entrance passage or hall, partitioned off by Queen Anne windows, while the stair steps are stained a dark terra-cotta red that well harmonises with the softened green of the chastely carved wood fittings. Like the lodging-houses of Glasgow, the dining-hall is of majestic proportions. It measures 55 ft. by 47 ft., and is about 20 ft. high. There is every convenience for cooking, and an iron turret stair leads up to a spacious balcony, where the lodgers may smoke in the open air and enjoy a commanding view of "modern Athens." The recreation-room is about the same size as the dining-room, and ample windows give the necessary light for the full enjoyment of the artistic surroundings. Excellent provision is made for cleanliness. Lavatories with ample accommodation, hot and cold water baths, and below in the basement two washhouses and two hot-air drying-rooms, one of each for the sheets and household linen, the others for the lodgers to wash and dry their own clothes. There is also a small fumigating oven for disinfecting clothes. Finally, the waterclosets are built according to the most recent and approved models.

It was only on reaching the dormitories that the inferiority of this model lodging-house, when compared with those built by the Glasgow trustees, became evident. Here the bunk system has also been adopted, and it is to these bunks that Dr. Littlejohn, the Edinburgh medical officer of health, has taken exception. He maintains that they are illegal. In the bye-laws authorised by the Edinburgh Municipal and Police Act of 1879, Clause 21 states: "No keeper of any common lodging-house shall use or permit any window curtains or bed curtains or hangings to be used in any sleeping apartment, and he shall cause the bedsteads to be used therein to be in the form of camp beds." The object of this, of course, is to secure a free current of air above, below, and around each bed. How can such a current be established in bunks, especially the lower bunk, which almost touches the ground, and is like a shelf in a cupboard. The bed in the lower bunk is but a few inches above the floor, and, as will be seen by the drawing we published with our report on Feb. 15th, is 2 ft. 4 in. wide, while the space between the bed and the partition wall is only 2 ft. 1 in. The currents of air will not obligingly descend this narrow channel, and then turn at right angles so as to sweep round the bed before going up and out again by the top. The upper bunk being nearer to the top of the partition, which is 7 ft. 6 in. high, is better ventilated. In Glasgow the bunks have open sanitary metallic spring mattresses, which allow the air to pass under the bedding, but this is not the case at Edinburgh. Then the Glasgow dormitories are, as we have already stated, elaborately and automatically ventilated with air inlets all over the floor, and a furnace and air shafts to stimulate the current. At Edinburgh there is no such provision; in fact, the dormitories of this model lodging-house are not ventilated at all. There are but the doors and windows, which are closed at night, just when the dormitory, being occupied, requires most ventilation. This, of course, renders the bunks far more likely to prove injurious. For this reason, Dr. Littlejohn has refused to license the lodging-house. The company have, however, avoided the law, which at Edinburgh defines a common lodging-house as a place where beds are let at less than 6*d.* a night. They had proposed charging, as at Glasgow, 3½*d* with one sheet, and 4½*d.* with two sheets. But having failed to obtain the necessary licence, they are obliged to charge 6½*d.* so as not to come under the definition of a common lodging-house. A strange anomaly this law, which allows people, by paying more, to sleep in less wholesome conditions. There can be no doubt that an iron camp bed in the centre of a bare room is by far the healthiest. The walls, the countless angles and corners that the bunk partitions create, render ventilation and cleanliness infinitely more difficult. The one argument in favour of the bunks is the privacy that they secure to each lodger. He can undress without being seen by his neighbours. But is privacy such a good thing in a public dormitory? In full view of thirty to fifty fellow lodgers, what mischief can a man do?

There is another so-called model lodging-house in Edinburgh, of much more modest dimensions and pretensions,

which is superior in some respects. It contains only 77 beds, instead of 384 as in the model lodging-house of the Grass Market; but these beds are camp beds, and there are numerous openings near the ceiling to draw the foul air off from the dormitory; also an aperture has converted each window-sill into a sort of Tobin's tube, so that some ventilation takes place when the doors and windows are shut. On the other hand, there is a total absence of artistic surroundings; the kitchen is a dark, unsuitable place down in the basement. This lodging-house is owned by a company which professes to be actuated by purely philanthropic ideas, but has nevertheless enjoyed very good dividends on its invested capital. The sanitary authorities are seeking to reduce these dividends by compelling the company to build better closet accommodation. In spite, however, of such laudable efforts, Edinburgh cannot boast of having displayed that spirit of reforming initiative and enterprise which has brought to Glasgow within the last few months any number of deputations, technical committees, and local authorities, all eager to study on the spot what had been done in respect to the housing of the poor.

CONVERSAZIONE OF THE CAMBRIDGE UNIVERSITY NATURAL SCIENCE CLUB.

THE Cambridge University Natural Science Club, a club founded by Balfour, Newell Martin, Milnes Marshall, and other distinguished Cambridge men in their undergraduate days, and ever since composed of the most representative students of natural science in the University, gave, as we mentioned last week, a conversazione on Feb. 18th at the Lodge of the Master of Downing (Dr. Alex. Hill). Despite the extreme prevalence of influenza in Cambridge at the present time, two hundred and sixty guests took part in an entertainment, the programme of which fully taxed their energies to master, for the competition amongst the sciences had resulted in a contest between the members of the club to render the departments under their particular charge the most effective. From amongst so many good things it would be invidious to select any for especial praise, but taking the rooms in order we must notice the admirable display of microscopes by Mr. Crouch (of the Barbican), and of microbes by members of the club; the manufacture of artificial silk, by Mr. Adie, and other physical apparatus. The display of physiological apparatus by Messrs. Burton and Shore worked to perfection. Professor MacAlister's room was greatly affected by the ladies, who did not seem to mind being shocked by the mummy heads unwrapped from their cloths and cunningly restored to condition of startling but somewhat ghastly life-likeness. By adding mummy cats, papyri, ornaments, and other contemporary relics, the professor, who is a recognised leader in Egyptology, rendered the description of the circumstances of the "heads" three thousand years ago singularly interesting. Among the chemical exhibits, a "pedigree tree of the coal-tar products," constructed by Messrs. Hankin and Hewitt, afforded ground for reflection. With coal-tar for its trunk, the tree bore as its fruits bottles of gorgeous aniline dyes and crystalline products of extraordinary incongruity; saccharin, antipyrin, and smokeless gunpowder, for instance, crowned neighbouring branches. The geological and botanical exhibits were very beautiful, while Mr. Harmer found himself more than occupied in explaining the living rotifers, hydroids, trout embryos in which the circulation of the blood could be followed, and other objects under his charge. Mr. Newall made and demonstrated the existence of utterly invisible quartz fibres, far thinner than a single filament of a spider's thread, and tougher than fibres of silk of ten times their thickness. A telescope from the observatory was placed on the south portico of the lodge, and although Professor Adams was not well enough, unfortunately, to show it himself, many of the younger and less cautious guests profited by the unusually clear and moonless night, which almost deserved all the praise given to "lovely night" by the King's College quartette.

The chief items in the programme were, however, three lectures to be given in the dining-room. Of these the first was to have been by the President of the Royal Society in illustration of his own researches on fluorescence, but the division upon Mr. Parnell's amendment compelled the attendance of Sir George Stokes at Westminster. Dr. Lauder Brunton greatly interested his audience with an account of his recent visit to Hyderabad, including his observations upon the habits and character of the natives, and some singular hypotheses regarding the Eastern origin of several of our common fairy tales. Dr. Brunton happened to be present at the banquet given by the Nizam to Prince Albert Victor, when the last dish was a royal dish reserved for such occasions only. Each guest was served with a pie made of tough thin crust, the indigestible appearance of which disturbed him, until he found that the pie was not to be eaten, but a portion of the crust torn off, when out there flew a little bird. This he thinks is the meaning of the four-and-twenty blackbirds "set before a king," which typified the liberation, on the occasion of a royal visit, of prisoners incarcerated for every kind of crime and no crime at all. Mr. Gardener's lecture on the "Sowing of Seeds" was very happily delivered and illustrated profusely. Pictures of flowers and seeds were projected by the limelight upon a screen, the mechanical contrivance for carrying them to a distance explained, and then the seeds themselves were allowed to drop from boxes fastened to the ceiling, while their transit through the air was rendered visible by beams of electric light. Indeed, a word of praise is due to Messrs. Bailey and Grundy for the excellent way in which the electric light was installed in the house for the occasion.

On their arrival at eight o'clock the guests were received by the Master of Downing and the President of the Club, Mr. Morell of Caius College, and the party broke up, after supper, at eleven.

THE LATE SIR WILLIAM GULL AND PROFESSOR WESTPHAL.

AFTER the reading of the minutes at the last meeting of the Neurological Society of London, the President, Dr. Buzzard, made the following remarks:—

"Since our last meeting death has deprived the Neurological Society of two of its most distinguished members. Even if this were a fitting occasion, we are too near the event to be able to attempt an estimate of the place which Sir William Gull is likely to take, in times to come, in the roll of the medical profession. But we know, from our own observation, that he was an ardent student of science, of singular shrewdness in diagnosis, gifted with a big mind which found interest in all that concerns humanity, and possessed of a power of personal influence and fascination which was felt by all, patients and fellow-workers, with whom he was brought in contact. There were none, I venture to say, of those who enjoyed his intimate acquaintance who failed to see in Sir William Gull one who was, so to speak, 'head and shoulders above the crowd.' Of wide knowledge and experience, he shrank instinctively from all forms of unhealthy specialism, but did not hesitate, when invited, to become an original member of this Society, of which he recognised the broad aims and worthy object. His contributions to neurology in more recent years are well known and recognised to be of permanent value. The cases of Paraplegia which he published in the Guy's Hospital Reports more than thirty years ago are such models of accurate observation and judicious induction that it is to be regretted that the form and mode of their publication have caused them to be less extensively known and studied than they deserve to be. Humanity and science have sustained a severe loss in the death of this accomplished physician.

"Our list of corresponding members is one of which any learned society might indeed be proud. It will be universally felt, I am sure, that the withdrawal from it of the name of Karl Westphal deprives it of one of its brightest ornaments. This accurate and indefatigable observer, whose acumen was only equalled by his rare scientific caution, will be sorrowfully missed from the ranks in which, especially during the last fifteen years, his name has become 'familiar as a household word.'"

THE BRITISH NURSES' ASSOCIATION.

AT a meeting of this association in Hanover-square, under the presidency of Mr. Pickering Pick, a paper on Private Nursing was read to a large audience by Miss Fogo Thompson, in the course of which she thought the advance of nursing as a profession had not kept pace with their progress as individuals. The public and the nurses had hitherto come together through the agency of institutions. She deprecated the action of those well-meaning people posing as philanthropists who devoted the proceeds of the nurses' labour to the maintenance of charitable undertakings, and she thought that their remedy lay in having some central authority which might deal a deathblow to these nurse farms, and improve the status of properly qualified nurses. An authority of this kind should have for its head a woman of common sense, tact, and knowledge, who had herself undergone a very complete training as a private nurse, and should also be in some way or other connected with a hospital. This might secure for the nurse some amelioration of the conditions under which she laboured, and secure a fairer apportioning of the extra charge made on the public for cases involving increased strain, risk, and worry for the nurses, which at present went to swell the receipts of the institution, and was not in the least degree shared by the nurse. She thought if nurses would unite in a strong and sustained effort to obtain a remedy for the anomalies which existed in their profession they would in due time reap the benefit of such combined action.

Miss Wood, Miss Homersham, Dr. Heywood Smith, and Miss R. Graham afterwards made some remarks on the paper, and generally endorsed the suggestions of Miss Thompson. A vote of thanks was awarded to her for her interesting paper, and also to the chairman.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On Fever in the Bedlingtonshire Urban District, by Dr. PARSONS.—The condition of this colliery district in Northumberland, with a population of some 16,000, evidently leaves much to be desired. It was inspected by Dr. Parsons in 1880, and in now revisiting the place ten years later, he finds himself obliged to report with regret that his former statements concerning it apply only too well at the present time. The improvements effected have related mainly to sewerage, but the sewers and drains are still imperfect. The ventilation of the former is defective, and the general arrangement of open drain channels about houses is associated with much uncleanliness of surface. External filth is also accompanied by a number of filthy interiors. The water-supply seems to be fairly good, but the midden-privy accommodation is highly defective. The authority are sufficiently backward to advocate receptacles for excreta, in the vicinity of dwellings, large enough for a man to get into to do the work of scavenging; and though the latter process is carried out under contract, yet it is associated in some parts of the town with the dirty and altogether inexcusable practice of first wheeling the filth into the street and there soiling the surface with the deposit, and then picking it up again in order to cart it away. During the ten years 1879–88 the zymotic death-rate averaged 3·3 per thousand, as opposed to 2·5 for England and Wales as a whole; and when the zymotic deaths are considered in detail it appears that scarlet fever and the continued fevers are largely accountable for the excess; "fever" reaching a rate of 6·0 per 1000, as opposed to 2·6 for England and Wales. The causes of the enteric fever prevalences in the place are discussed, and it seems clear that the excessive amount which has existed must in the main be put down to the facilities for the diffusion of this essentially filth infection which are afforded by the midden-privy system. There has also been some typhus in Bedlington, but the disease did not widely spread. Obviously, one of the main efforts of the sanitary authority should be a remodelling of their midden-privy system, which, unless water-carriage should be decided on, ought to be so designed and managed as to secure the utmost procurable dryness of closet contents, and such systematic removal that there shall be no excuse for the retention of excreta about dwellings for a period exceeding one week at the most.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Stapleton Urban District.—During the year 1889 the general mortality-rate for this district was 13·3 per 1000; and Dr. W. Brown is able to say that there was a marked absence both of cases and mortality from the several infectious fevers. Where such cases did occur some very obvious insanitary conditions were discovered, pointing to the desirability of a regular house-to-house inspection together with the maintenance of a record of its results, so that the faulty conditions discovered may be got rid of before the occurrence of preventable disease. The private streets, so often a source of nuisance in small towns, sadly need attention; and it is to be hoped that the action now contemplated may be carried through wherever it is wanted. Inspection of cowsheds and dairies has revealed a number of objectionable and unwholesome conditions, and it is to be hoped these may be effectually abated before the occurrence of mischief.

Hastings Urban District.—Mr. Knox Shaw has an exceptionally satisfactory report to offer as to the year 1889. The general death-rate and the so-called zymotic rate were only 12·4 and 0·6 per 1000 respectively. From scarlet fever and small-pox there were no deaths, although 22 cases of the former disease were received into the isolation hospital. Diphtheria caused six deaths, and atmospheric infection from sewer gas is referred to as a probable cause. We are glad to see that the corporation are advised by their medical officer of health not to hinder the isolation of the infectious sick by making a charge for admission into the ordinary wards of an institution erected and maintained at the cost of the ratepayers. A good deal of excellent sanitary work is in progress in the town, and improvements of an important character have been made as to water-supply and drainage.

Clitheroe Urban District.—This being the first annual report which has to be transmitted to the County Council, Mr. J. J. Fraser has reviewed the topographical and general circumstances of Clitheroe in some detail. He also describes the conditions of water-supply, sewerage, and refuse disposal which are in operation there. The method of sewage disposal is obviously wrong, and this matter may well come within the proceedings which the County Council should take for preventing the pollution of water-courses. Open ashpits have largely been done away with, and the direct connexions between drains and houses has been to a great extent abolished. The general death-rate for 1889 was 20·1 per 1000, which is distinctly in excess of that which should prevail. Enteric fever also contributed by some excess to augment the general rate, but whooping-cough and measles were largely prevalent and caused the most considerable fatality. In reference to the notification of infectious diseases mention is made of the need for means of isolation and efficient disinfection if the adoption of the compulsory clauses of the new Act is to operate properly in preventing the spread of disease.

Wellingborough Rural District.—In discussing the infectious fevers which have prevailed during 1889, Mr. Howell Thomas refers to a serious outbreak of measles at Rushden and to certain occurrences of enteric fever which were associated with faulty sanitary conditions. In six of the larger villages public scavenging is performed with excellent results, but the need of an infectious hospital still remains unsupplied. The soil being chiefly of a clayey nature Mr. Thomas points out the real advantages which would be arrived at as regards both phthisis and rheumatism if the sites of all dwelling-houses were covered with concrete so as to exclude moisture. The death-rate for the year was 15·6 per 1000 living.

Bisley Urban District.—Mr. T. Partridge records a death-rate of 16 per 1000 in this district during 1889, and he draws attention to the difficulty he experiences in dealing effectually with infectious diseases, since, in a number of cases, he only hears of them during convalescence. The need for

improved water supply at France Lynch is evidently urgent, but the authority have as yet not acted in the matter.

Stroud Urban District.—Mr. Partridge is in this district able to recall a steady improvement as regards mortality and sanitary circumstances, and he gives the death-rate for last year as 13·4 per 1000. After referring to the infectious diseases that have prevailed, he calls the attention of the authority to the fact that whilst the public water-supply is of excellent quality it is distinctly deficient in point of quantity, and that complaints are made accordingly. Defects in drainage and at the sewage outlet also call for notice.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN twenty-eight of the largest English towns 5803 births and 4685 deaths were registered during the week ending Feb. 22nd. The annual rate of mortality in these towns, which had been 22·8, 23·0, and 25·3 per 1000 in the preceding three weeks, declined again last week to 25·1; the rate was 21·8 in London and 28·0 in the twenty-seven provincial towns. During the first eight weeks of the current quarter the death-rate in the twenty-eight towns averaged 25·1 per 1000, and was 1·8 above the mean rate in the corresponding periods of the ten years 1880–89. The lowest rates in these towns last week were 14·8 in Brighton, 18·6 in Derby, 18·7 in Cardiff, and 19·9 in Birkenhead. The rates in the other towns ranged upwards to 33·4 in Oldham, 33·8 in Wolverhampton, 35·3 in Manchester, and 37·7 in Preston. The deaths referred to the principal zymotic diseases, which had been 345 and 419 in the preceding two weeks, declined again last week to 371; they included 168 from whooping-cough, 51 from scarlet fever, 44 from diarrhœa, 43 from diphtheria, 39 from measles, 25 from "fever" (principally enteric), and only 1 from small-pox. No death from any of these zymotic diseases was recorded during the week in Birkenhead or in Cardiff, while they caused the highest death-rates in Blackburn and Salford. The greatest mortality from whooping-cough occurred in Bolton, Salford, Hull, and Bristol; from scarlet fever in Sheffield and Blackburn; and from measles in Liverpool. No marked excess of "fever" mortality was recorded in any of the towns. The 43 deaths from diphtheria in the twenty-eight towns included 27 in London, 5 in Manchester, 5 in Salford, and 2 in Liverpool. Small-pox caused 1 death in London, but not one in any of the twenty-seven great provincial towns. Five cases of this disease were under treatment on Saturday last in the Metropolitan Asylum Hospitals, and not one in the Highgate Small-pox Hospital. The number of scarlet fever patients in the Metropolitan Asylum and London Fever Hospitals further fell last week to 1247; 89 cases were admitted to these hospitals during the week, against 99, 75, and 63 in the preceding three weeks. The deaths referred to diseases of the respiratory organs, which had declined in the preceding six weeks from 1069 to 439, rose again last week to 451, but were 34 below the corrected average. The causes of 100, or 2·1 per cent., of the deaths in the twenty-eight towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Brighton, Norwich, Plymouth, Derby, and Cardiff; while the largest proportions of uncertified deaths were registered in Wolverhampton, Hull, and Halifax.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 25·0 and 28·7 per 1000 in the preceding two weeks, was 28·3 in the week ending Feb. 22nd; this rate exceeded by 3·2 that which prevailed during the same week in the twenty-eight English towns. The rates in the eight Scotch towns ranged from 20·3 in Greenock and in Perth to 31·8 in Glasgow, 31·9 in Paisley, and 33·5 in Dundee. The 732 deaths in the eight towns showed a decline of 10 from the number in the previous week, and included 42 which were referred to whooping-cough, 24 to measles, 8 to "fever" (typhus, enteric, or ill-defined), 8 to diarrhœa, 7 to scarlet fever, and not one to small-pox. In all, 100 deaths resulted from these principal zymotic diseases, against 85 and 95 in the preceding two weeks. These 100 deaths were equal to an annual rate of 3·9 per 1000, which exceeded by 1·9 the mean rate last week from the same diseases in the twenty-eight English towns. The highest death-rates from these diseases last week were 5·2 in Edinburgh and 5·6 in Dundee. The fatal cases of whooping-cough, which had been 29 in each of the previous two weeks, rose last week to 42, and included 16 in Glasgow, 14 in Dundee, 9 in Edinburgh, and 3 in Greenock. The 24 deaths from measles showed a decline of 10 from the number in the previous week; 11 occurred in Edinburgh, 9 in Glasgow, and 3 in Leith. The deaths from diphtheria, which had been 12, 7, and 8 in the preceding three weeks, rose again last week to 11, of which 5 were returned in Glasgow, 2 in Dundee, and 2 in Leith. The 8 deaths referred to "fever" corresponded with the number in each of the preceding two weeks, and included 3 in Glasgow and 3 in Edinburgh. Of the 7 fatal cases of scarlet fever, 5 occurred in Glasgow and 2 in Edinburgh. The deaths referred to diseases of the respiratory organs in the eight towns, which had been 162 and 195 in the preceding two weeks, further rose last week to 205, and exceeded by 83 the number returned in the corresponding week of last year. The causes of 93, or nearly 13 per cent., of the deaths in the city were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 33·4 and 37·8 per 1000 in the preceding two weeks, declined again to 35·3 in the week ending Feb. 22nd. During the first eight weeks of the current quarter the death-rate in the city averaged 40·7 per 1000, the mean rate during the same period being 25·5 in London and 26·9 in Edinburgh. The 239 deaths in Dublin last week showed a decline of 17 from the number in the preceding week; they included 6 which were referred to "fever" (typhus, enteric, or ill-defined), 4 to whooping-cough, 3 to measles, 1 to diarrhœa, and not one either to small-pox, scarlet fever, or diphtheria. Thus the deaths from these principal zymotic diseases, which had been 12 in each of the preceding two weeks, rose last week to 14; they were equal to an annual rate of 2·1 per 1000, the rate from the same diseases being 2·2 in London and 5·2 in Edinburgh. The fatal cases of "fever," which had been 6 and 5 in the preceding two weeks, rose again last week to 6; and the fatal cases of whooping-cough also exceeded the number in the previous week; whereas the deaths from measles showed a decline. Five inquest cases and 7 deaths from violence were registered; and 83, or more than a third, of the deaths occurred in public institutions. The causes of 28, or nearly 12 per cent., of the deaths in the city were not certified.

THE SERVICES.

A GREENWICH HOSPITAL pension of £50 a year for Fleet or Staff Surgeons, R.N., has been awarded to Deputy Inspector-General of Hospitals and Fleets Francis Y. Toms, in the vacancy created by the death of Deputy Inspector-General Charles K. Nutt.

ARMY MEDICAL STAFF.—The undermentioned Surgeons to be Surgeons-Major, ranking as Majors (dated Feb. 3rd, 1890):—William Keays, F.R.C.S. Ireland; Robert Talbot Beamish, M.D.; Walter Augustus Parker; Jas. Anderson, M.B.; Jules Isham Routh; Henry Grier; Henry James McLaughlin, M.B.; Edward Richard Power, M.B.; Hugh Latimer Donovan, M.D.; Nicholas Leader, F.R.C.S. Edin.; James Tidbury, M.D., Allan Andrew Lyle; Henry Arthur Herbert Charlton; Henry Ernest Walter Barrington, M.B., F.R.C.S. Ireland; and Charles Quarry. Surgeon Henry Martin, M.B., is seconded for service on the Staff of his Excellency the Governor of Bombay (dated Feb. 26th, 1890).

ADMIRALTY.—The following appointments have been made: Surgeon William G. Jack to Bermuda Hospital, and Surgeon Edward Ferguson to the *Forward* (both dated April 2nd, 1890); Surgeon John H. Thomas to the *Redbreast* (dated Feb. 27th, 1890); Surgeon George Welch to the *Sphinx* (dated Feb. 26th, 1890); and Mr. S. Smith to be Surgeon and Agent to Torcross and Hallsands (dated Feb. 24th, 1890).

VOLUNTEER CORPS.—2nd Volunteer Battalion, the Highland Light Infantry: Acting Surgeon J. Wylie, M.B., to be Surgeon (dated Feb. 22nd, 1890).

Correspondence.

"Audi alteram partem."

THE HYDERABAD CHLOROFORM COMMISSION.

To the Editors of THE LANCET.

SIRS,—Although wishing that space would permit me to express my keen appreciation of the work done by the Commission, I feel that, as there is so much to be said on this important subject, I must at once proceed to the consideration of the questions at issue.

In the first place I would ask what is the true value of the physiological fact that, when chloroform is administered in toxic doses to the lower animals, respiration ceases before cardiac action? Have we any clinical evidence to prove that, *under similar circumstances*, this sequence of events is not met with in human beings? In most, if not in all, of the rapidly fatal cases which have occurred under chloroform, it has, for obvious reasons, been a matter of extreme difficulty to say at what particular moment the heart ceased to beat. Failure of the pulse has often been taken to mean stoppage of the heart, but without sufficient grounds. If it were possible to make a series of observations upon human beings with that accuracy which is attainable when conducting experiments upon lower animals, I should not be surprised to learn that, when chloroform causes death solely by reason of its toxic properties, the same sequence of events as that observed by the Hyderabad Commission invariably occurs. But our knowledge concerning the action of the heart under anæsthetics is almost entirely dependent upon observations on the pulse; and it would seem that confusion has frequently arisen in consequence of failure of the pulse having been taken to mean that the heart has "suddenly ceased." I am here only referring to those cases in which chloroform itself would seem to have been the cause of death; and in such cases, which are usually rapid in their course, I do not think the clinical evidence we possess is sufficient to disprove the contentions of the Commission. But this, I submit, is the least important part of the subject. Even though we admit the fact that, when chloroform itself is the direct cause of death, respiration ceases before the action of the heart, we are confronted by a question which seems to me far more important than that upon which the Commission has laid so much stress. When fatalities occur during the administration of chloroform, are those fatalities invariably caused by the direct toxic effects of the drug? In other words, have we not conclusive evidence to show that, in man, deaths under chloroform sometimes arise by reflex cardiac failure which is only indirectly due to the anæsthetic? I cannot regard the experiments of the Commission in this direction as rendering such a position untenable; for cases have come under my own observation in which symptoms of cardiac depression obviously of reflex origin have arisen. Whether it be the low vascular tension of chloroform narcosis or other conditions I know not; but I feel sure that there is something that renders the human heart under chloroform susceptible to impulses which are utterly inoperative under ether. I am inclined to the belief that the performance of many operations under chloroform is attended by considerable risk from this quarter; and I am by no means satisfied that cardiac inhibition is less likely to be produced during profound than during imperfect anæsthesia under chloroform. Not long ago I administered chloroform, by means of Junker's apparatus, to a patient of about thirty-five years of age, whose general health was good. Anæsthesia was produced in from eight to ten minutes, and was characterised by muscular flaccidity, abolition of lid reflex, and slight stertor. There were two stages in the operation about to be performed, the first of which consisted in placing a temporary ligature round the carotid artery in the neck. Whilst the artery was being exposed for this purpose the pulse became extremely feeble, the face pale, and respiration shallow, and the operator had some difficulty in recognising the carotid artery by reason of its extraordinary diminution in size. The head was lowered. After three or four compressions of the chest the pulse improved, and, as rigidity and lid-reflex soon reappeared, I was obliged to continue the administration, having recourse to ether for the remainder of the operation, which was successfully performed. The day after the operation, whilst the wound over the carotid was being examined, the patient's face suddenly became pale, the artery contracted as on the previous occasion, the eyes were observed to turn upwards and the muscles of the jaw to twitch, and for a few seconds unconsciousness was present. Now in this case, when the first attack of syncope occurred the patient was thoroughly anæsthetised by chloroform; whilst the quick return of muscular rigidity and of lid-reflex proves that the anæsthetic was in no way to blame as a *direct* cause of the symptoms. Cases of this kind are, I believe, by no means uncommon, and they would seem to point to the conclusion that reflex syncope may undoubtedly arise under chloroform even when the anæsthesia is profound. Apart from anæsthetics, some persons are, as is well known, more prone to syncope than others, and this would seem to be so with regard to patients under chloroform. How can we compare the patient above referred to to the pariah dog? Would the latter be likely to be attacked with syncope by manipulating its carotid? I gather from the report of the Commission that syncope, should it arise, is a safeguard against chloroform poisoning rather than a condition involving much danger to life; but we cannot look upon it in this light when we meet with it upon the operating table.

In conclusion, I would say a few words concerning the indications afforded by the pulse during chloroform administration. There is much evidence to show that, in whatever way death occurs during chloroform narcosis, the pulse, if carefully watched, usually gives warning of the approach of danger before respiration has become seriously affected. In those cases in which cardiac depression is only indirectly due to the chloroform—such, for example, as the case I have related—the initial symptoms are obviously cardiac in origin, and are hence to be detected by alteration in the force and frequency of the pulse. In those cases, too, in which the symptoms are indisputably due to an overdose of chloroform—such, for example, as the cases reported by the Commission—the pulse will, in obedience to the fall of vascular tension (which, as the Commission admits, precedes stoppage of respiration), give indications of the most important character. If the Commission could prove that when chloroform is administered in toxic doses respiration invariably ceases *whilst* the radial pulse is practically unaltered in quality, we should begin to look upon chloroform as a respiratory poison only; but these are not the facts, so far as I understand. I cannot avoid the conviction that the Hyderabad Commission have incurred a grave responsibility in eulogising chloroform as an anæsthetic for general purposes, and in recommending administrators to disregard the indications afforded by the pulse. As I have before ventured to point out in these columns, we should consider the inexperienced rather than the experienced in recommending an anæsthetic. I have lately read the records of every fatal case reported by THE LANCET and *British Medical Journal* as having occurred under anæsthetics in the British Isles from 1880 to 1889 inclusive, and I find that out of a total of 130 chloroform deaths no less than fifty-four took place in connexion with minor surgical operations, most of which were doubtless conducted with somewhat less caution than would have been employed in more critical cases. Are we to advise the use of chloroform (which Dr. Lauder Brunton admits to be a most powerful drug) to recently qualified men, who have perhaps never employed it before? I confess I cannot regard it as advisable to permit those with but little experience to administer chloroform to patients coming into the surgeries of hospitals with a dislocated shoulder or a lacerated finger, yet this course is one which the Commission appear to countenance. Even though we accept the facts so ably put before us by the Hyderabad Commission, we are, I would submit, in no way justified in agreeing with the practical conclusions at which the Commission have arrived.

I am, Sirs, yours obediently,

FREDERIC HEWITT,
Instructor in and Lecturer on Anæsthetics at the London Hospital, &c.
George-street, Hanover-square, W., Feb. 24th, 1890.

A THERAPEUTICAL PARADOX: ACTION OF EXPECTORANTS.

To the Editors of THE LANCET.

SIRS,—In Dr. Murrell's very interesting and practical little book on "Chronic Bronchitis and its Treatment," 1889, I find at page 35 the following curious and, as I think, antiquated or rather superannuated doctrinal paradox: "Expectorants may be divided into two classes: those which depress the heart, lessen blood pressure, and increase secretion; and those which stimulate the heart, increase blood pressure, and diminish secretion." Curious, is it not, on the face of it, that remedies of exactly and diametrically opposed physiological actions should each produce a like if not identical therapeutic result? still more curious that, when put into one mixture, these opposites should, as by general consent they do, aid and not annul or interfere with each other in respect of this therapeutic action. Dr. Murrell, however, is in no way responsible for this paradox, which comes down to us as a heritage from the time at least of Cullen, if not directly from him at the first. But I hope Dr. Murrell will excuse my saying that we do not need to accept it, even at his hands, as matter of settled doctrine, though I for one am both ready and willing to accept from him whatever he can tell us of his valuable clinical experience, so well described in this little book. Having neither the leisure nor the disposition at present to prolong discussion on merely theoretical questions, which, after all, do not admit of being finally adjusted, I will only add now that I traversed the whole of the ground of this argument more than a quarter of a century ago, in an article in the *Glasgow Medical Journal* (2nd series, vol. xi., pp. 129–44) on the Action of Expectorant Remedies, in which I took occasion to show that a more consistent theory, altogether devoid of paradox, and more in accord with the facts of common experience than the above, was at least possible, if not probable. From all that has since come to light as regards new and old remedies of this class, and especially from the now well-established efficacy of apomorphine as an expectorant, I am inclined to believe that the theory set forth in that article was not far from the truth; and I avail myself accordingly of the opportunity of commending it to your readers. It is curious that the newer treatises on Therapeutics seem more and more disposed to fight shy of *any* theory of expectorant remedies, and some of the most noted of these systematic works drop the class altogether out of recognition.—I am, Sirs, yours obediently,

Glasgow University, Feb. 26th, 1890. W. T. GAIRDNER.

ABUSE OF UTERINE TREATMENT.

To the Editors of THE LANCET.

SIRS,—Your leader on the above subject in last week's issue, founded on some observations of Dr. Goodell, might have been useful many years ago, or even now to a few practitioners who are too prone to ride particular hobbies almost to death, but is scarcely needed by the modern gynæcologist who is large-minded enough to give a proper consideration to each case that presents itself to him. Dr. Goodell couples the "abuse" with "mistaken diagnosis," but your article rather gives a slap to all gynæcologists, as if they habitually pursued lines of treatment in order to maintain some particular theory, irrespective of the indications of each several case. Dr. Goodell's own remarks are open to a similar accusation in referring most ailments of women to neurosis, which is a convenient term that covers the difficulty of many a mistaken diagnosis. "Certain conditions of the uterus" may be "insignificant" to some minds, while to others they represent a serious malady. The question is, do they hurt, are they curable, and, if so, how? I contend that all the lesions you refer to do exist, and it behoves every gynæcologist to see that, if possible, pain is traced to its source, and that it be not ticketed "neurotic" as an easy way out of a process of elimination that might lead to a correct diagnosis. That some cases do require caustics, or pessaries, or incision of the cervix, or Emmet's operation, or massage, no modern gynæcologist will deny; what we need is to carefully try to discover the real cause for any particular pain, and use such means as we have at our command to relieve *cito, tuto, et non jucunde.*

Take, for instance, one remark of Dr. Goodell's: "Anteflexion *per se* is not a pathological condition." This is true of "ante-*curve*," but a is merely an extenuation of the fœtal condition; but a true ante-*flexion is* a pathological condition. Though it may not give rise to dysmenorrhœa, it may produce other results—as, e.g., sterility. A golden rule should be, though it may be a paradox, that any pathological condition that produces neither pain nor inconvenience, nor threatens the life of the patient, should be severely let alone until some change compels attention to it. Gynæcology has made such strides and done so much good during the past fifty years that it is ungracious to sneer at its little mistakes and relegate its practitioners to a class not far removed from charlatanism.

I am, Sirs, yours faithfully,

Harley-st., Feb. 24th, 1890. HEYWOOD SMITH.

*** We agree with our correspondent that every case of disease should be treated on its merits. It may be maintained that such has been the rule at all times, and with the results described by Dr. Goodell as the abuse of uterine treatment. Were any justification of our article called for, it would be found in the second paragraph of the above letter in the remarks about true ante-flexion. The fullest observations—both clinical and anatomical—made on this condition clearly show that it is not a pathological condition, and that it gives rise to no symptoms.—ED. L.

A LONDON HOSPITAL FOR INSANE PAUPERS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of February 1st you have reproduced a report made by the committee appointed by the London County Council to consider the above question. There is much in that report which is not only misleading, but which is also a most serious charge against assistant medical officers in lunatic asylums. As a member of that body, I shall feel indebted to you if you will grant me a little of your valuable space, in order that I may set the matter before your readers and the profession in a somewhat different light. There can be no doubt that the committee have arrived at their conclusions either without due consideration or from premises which are entirely false. They say that "the defects of the present asylum system are chiefly due to the fact that assistant medical officers ..... fall into the groove of asylum habits and ways of thought ..... and the purely medical treatment underlying insanity is seriously neglected for that of mere administration." I can safely say that in no London asylum does an assistant medical officer have his hand burdened by administration, this being done entirely by the superintendents and the resident stewards. We do not, therefore, have the opportunities of becoming skilled administrators, neither do we find ourselves at the head of large households, as is stated to be the fact in the committee's report. We may perhaps have much work to do which could be equally well done by a mere copying clerk; but this is over and above, and is not allowed to interfere with "the purely medical treatment underlying insanity." Every patient in this asylum who makes the least complaint is without delay thoroughly overhauled; and not only so, but everyone who is seen to look ill is at once carefully examined, and his (or her) case inquired into. As each patient is seen at least once daily by one of the assistant medical officers, the risk of neglect is thus reduced to a minimum.

It is hardly necessary for me to answer the assertion made by the committee that we assistant medical officers are "without opportunities or inducements to render ourselves skilled 'medical' practitioners." Few of us, I believe, are altogether without ambition, and, as we have made it our life's work to become "skilled medical practitioners," it is ridiculous and absurd to suppose that we are all like that unprofitable servant who buried his talent in a napkin. The committee tell us that "we are too young to have any independent experience of disease." In this asylum there are four assistant medical officers, and our united ages amount to a sum of 151 years, giving an average age of 37·75 years for each individual. When may we hope to be old enough to have some independent experience of disease? We have most of us (according to my experience) had a tolerably good education and training in our profession before entering upon the arduous and harassing work of our specialty, and I

know personally at least four assistant medical officers, who are now serving the London County Council, who, before entering upon asylum work, had some years' experience in the treatment of disease, not only in this country, but also abroad. I am perfectly sure that there are very few general practitioners indeed who during the course of a day's work meet with so many cases demanding medical knowledge and skill as do we in large lunatic asylums; and certainly there are none whose cases, from the very nature of things, require such careful investigation and physical examination, since often enough physical signs are the only data we have to go upon.

With regard to the advancement of our specialty, I may perhaps leave to others who are more experienced than I the task of comparing it with other branches of medicine. Of one thing I am sure, however—namely, this: that no general hospital can show a greater percentage of recoveries than we can, or such a small death-rate on the resident population—facts which, I presume, may be allowed to have some weight, especially as the vast majority of our cases are on admission not only diseased mentally, but are also in a state of extreme malnutrition and debility, and are frequently suffering from serious bodily ailments. I maintain that *all* the "resources which skill and experience can command" are at the present moment ungrudgingly bestowed upon the insane paupers of London.

Sir James Crichton Browne says that "a large proportion of cases admitted into county asylums in England do not get medical treatment at all!" This is surely a most sweeping statement, and if there be any truth in it (and, coming from such a source, who can doubt that there is?), I would ask, Why has such a state of matters been allowed to continue into the tenth decade of the nineteenth century? There is a Commission in Lunacy, who have ample opportunity of making a most searching investigation in this direction; and certainly neither in this asylum nor in any other with which I am acquaintedneed there be any fear as to the results which such an investigation would lead to.

Sir James also made a statement with regard to scientific work which does not flatter us. From the training that we have all had, I think that I am not wrong in saying that by many of us such work would be looked upon as almost a healthful recreation and pleasant change from the mere routine duties of our daily life. I believe, however, that the chief reason of our being is the welfare of our patients, and the advancement, if possible, of the health and happiness of the most painfully afflicted class of our fellow-creatures. Both in America and on the continent of Europe, where the medical staff of asylums is very much larger than in this country, and where also much time is given up to scientific research, the curative treatment of insanity has not advanced beyond what it has in England. On the contrary, we can give them many hints. I am aware that during the period of Dr. Crichton Browne's medical directorship of the West Riding of Yorkshire Asylum, at Wakefield, that asylum enjoyed a reputation for good scientific work to which perhaps none other in the country can ever hope to attain; but upon referring to the asylum reports for that period, I fail to discover any exceptional figures in the percentage of recoveries or any marked diminution in the death-rate. Granted that our main object is not that which I have indicated above, but rather the advancement of medical and psychological science, let me remind Sir James Crichton Browne that such work cannot well be done without time and appliances. The latter cannot be obtained without money, and there is no doubt that the late controllers of the Middlesex pauper lunatic asylums were careful that their expenditure should not be more lavish than was necessary. The former it is impossible to make while assistant medical officers are employed with the clerical work of an asylum and the medical treatment of the insane during from eight to ten hours daily. I believe that if the existing asylums were equipped with an ample scientific outfit, and such additional assistance were given to their existing staff as would enable those on the staff to devote some time to scientific work, that work would be carried on with credit to themselves and to the advancement of what is certainly the highest and most difficult branch of medical science.

I am, Sirs, yours faithfully,

PERCY J. BAILY, M.B.

London County Lunatic Asylum, Hanwell, February, 1890

OUTBREAK OF SMALL-POX AT CRESSING.

To the Editors of THE LANCET.

SIRS,—The further details of this outbreak are as follows. No fresh cases have been reported or heard of up to this date, so that no extension of the disease occurred after Jan. 29th, when the outbreak was first notified. On Feb. 12th an unoccupied cottage at Cressing was placed at the disposal of the rural sanitary authority to meet the emergency temporarily. This was hastily made habitable, and furnished sufficiently to allow of three cases being admitted on the 15th inst. A second nurse was sent for, and the cottages whence the patients had been removed were fumigated with sulphur. It was not considered necessary to remove two of the cases, and the cottage is not large enough to accommodate them. Cressing school has been closed. The urban authority, having now to act alone in the matter of isolation, have, after considerable discussion, arranged to have at their disposal an improved hospital marquee for eight patients for the next three months. The following facts confirm your editorial note following my letter of the 11th inst. During an epidemic of enteric fever and diphtheria at Great Coggeshall (inhabitants 2998) in 1875–6 an isolation hospital was built during the panic. The cost was about £1000; it was used for two or three patients, and after one year taken down and sold for about £100. Few things more prejudicial than this can occur to check the progress of sanitary work, and when urging upon the rural sanitary authority the necessity of providing means of isolating cases of infectious disease I have been met with the above facts, which appear to me will never be forgotten by certain inhabitants of this district.—I am, Sirs, yours faithfully,

C. E. ABBOTT,
Medical Officer of Health, Braintree Urban and Rural Districts.

Braintree, Feb. 25th, 1890.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

Newcastle.

A CASE of considerable medico-legal and assurance interest has been tried at the present Northumberland and Newcastle Assizes, before Mr. Justice Day. The plaintiff, Mr. John Beach, a gentleman residing at West Hartlepool, sued the Imperial Union Accident Assurance Company for the sum of £500, in respect of disablement by the loss of one eye. It was shown that the plaintiff was a policy-holder in the company since 1877, one of the conditions being then that, in case of the loss of a limb or of the sight of both eyes, the company would pay over to the assured one-third of the amount of the policy. Again, in 1887, one of the conditions of the policy was that the compensation would be increased to one-half of the policy in case of the total or irrecoverable loss of one eye. The story of the accident was as follows. On June 5th last he was riding in a lane in the neighbourhood of West Hartlepool, when his horse shied and swerved to one side, with the result that a thorn in the hedge pierced his right eye, and, as Dr. Gourley said, who was his usual medical adviser, there was a traumatic cataract formed, but he also advised him against an operation. The loss of sight was admitted by the ophthalmic surgeons, but the case hinged upon the propriety of an operation, the company contending that the sight might be recovered by an operation, and they paid £50 into court to meet the case and offered to pay the expense of operation in London. Mr. G. E. Williamson and Mr. Rutherford Morrison, together with Dr. Heath, were adverse to an operation; the latter modified his evidence by stating that there was no special reason why an operation in this case should not succeed, though he considered that the plaintiff had without an operation irrecoverably lost his sight. Mr. Jeaffreson of Newcastle, and Drs. Stowers and Brailey of London, were in favour of the operation, which the plaintiff declined to have performed. The judge commented upon this conflict of opinion, and put these questions to the jury: (1) Whether, in the event of the proposed operation being successful, the sight of the eye would, in the judgment of the jury, be recovered; (2) whether a reasonably prudent and uninsured person would undergo the operation. He said it was perfectly clear that the operation would not restore the sight as it was before the

accident; the plaintiff's sight was to a considerable extent irrecoverable, and to a certain extent it might be recovered, but the question was whether it would be substantially recovered. The jury answered both questions in the negative, and judgment was given for the plaintiff.

Durham: The Friendly Societies' Convalescent Home.

The movement for the establishment of a Convalescent Home for Friendly Societies of the north of England on the west coast is making solid if rather slow progress. It will be remembered that the project was initiated by Dr. Wm. Robinson of Stanhope, and its essential features were that the Home was to be founded and supported by the Societies for the benefit of their members, by whom also it was to be managed. At a meeting held at Durham on last Saturday it was reported that about £120 had been subscribed in Sunderland towards the inauguration fund, and that Dr. Barron of Durham, who has taken a lively interest in the scheme, had placed £32 in the hands of the treasurer, the result of a concert given by himself and friends in the Town Hall.

Middlesbrough: Prevalence of Scarlet and Typhoid Fevers.

It was reported last week at a meeting of the Middlesbrough Fever Hospital Committee by Dr. Malcolmson that there had been 23 patients admitted to the Fever Hospital since the last meeting, 12 from scarlet fever and 11 from typhoid; 1 death resulted from typhoid and 1 from scarlet fever, in the latter case the victim being the daughter of the Chief Constable, eight of whose children have been attacked by the fever, and two have died.

Gateshead.

The Gateshead Dispensary is one of the oldest and best-managed medical charities in the north, and at the annual meeting just held a very satisfactory report was presented, showing a record of much work. The number of patients treated by letter was 3645. No less than 2503 patients were treated at their own homes and 1142 at the institution; casual patients 12,082. On the whole, there had been an increase of 1222 patients during the year, and the total number treated was 15,727. The financial statement was good, and there was a balance in hand of £441. Reference was made to the resignation of the late house-surgeon, Dr. Hardie, who had for five years held the post, his health having compelled him to proceed abroad. The Children's Hospital, quite a young institution at Gateshead, has also been doing good work, as seventy-five new cases had been admitted during the year and 754 out-patients had received the benefits of the charity. Since the meeting was held the hospital has received a bequest of £500, left by Lady Northbourne, who had taken a great interest in its welfare. The legacy is to be paid at the rate of £100 per annum.

Newcastle Sick Children's Hospital.

The annual meeting of the Children's Hospital was to be held on Tuesday last, but owing to the death of Mr. John Fleming it has been postponed. Mr. Fleming, it will be remembered, built, furnished, and equipped at his sole cost of £23,000, the magnificent institution at the Moor Edge, near Newcastle, which is in itself an ornament to one of our principal suburbs; it accommodates sixty-four patients, and was handed over complete as it stands to the trustees by Mr. Fleming in September, 1888.

Newcastle-on-Tyne, Feb. 26th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

EDINBURGH.

The Societies.

AT the meeting of the Royal Physical Society last week Dr. Johnson Symington presented a paper on the Viscera of a Female Chimpanzee. He devoted the greater part of this paper to the configuration of the brain. The animal on which he based his observations was 2 ft. 2½ in. in height, and was probably about three or four years old. The weight of the brain was between twelve and thirteen ounces, and, compared with the brain of a child of a corresponding age, which would weigh about forty ounces, it was extremely small. He described some of the principal differences in the arrangement of the convolutions, especially as regards their size, arrangement, and relative proportions.

At the Scottish Microscopical Society, Professor Sir Wm. Turner, F.R.S., presiding, Professor Rutherford gave an elaborate *résumé* of the work that had been done by recent workers and himself on the "structure and contraction of striped muscular fibre." He dealt with the various theories of striation of fibrils of the muscles of the crab, lobster, and water-beetle, and stated that he did not intend to withdraw from the position that he took in his communication on the subject to the International Medical Congress in London in August, 1881. He was not able to finish the whole of his observations, and will bring the matter up especially in regard to his own work at a future meeting of the Society, when the whole paper will be submitted for discussion. At the same meeting Dr. J. M. Macfarlane gave a most interesting account of the "Microscopic Structures of some Plant Hybrids." He holds that many important practical questions connected with both plant and animal hybridism may be settled by a careful study and comparison of the different parent and hybrid forms. He concludes that certain forms hitherto regarded as species are proved by their microscopic structure to be hybrids in which are united the peculiarities of both parents, not only in the shape, size, and arrangement of cells, but even in such cell contents as starch, proteids, and crystals, and he argued that we had thus direct proof of the general truth of Darwin's pangenesis theory. He considered that in future minute cell structures must be carefully considered and taken into account in arranging plant species in any system of natural classification.

Alleged Contravention of the Edinburgh Slaughter-houses Act.

On Saturday a verdict of "not proven" was given in a case in which a butcher was charged under the Edinburgh Slaughter-houses Act, 1850, with having in his booth in the slaughter-house on Feb. 11th the carcase of a cow which was stated to be unwholesome and unsound. It appears that this cow had been in the possession of the butcher only a few hours when it was killed; that no evidence had been given of the presence of advanced tuberculosis during life; but that in the first instance the inspectors had not access to the lungs, which were distinctly tuberculous; and the carcase itself showed extensive disease from tuberculosis. One of the witnesses for the prosecution, Professor Walley, said that he had seen the animal during life, but that there was no special evidence of tuberculosis. The carcase was marked "for inspection," and it was evident, from the condition of the animal after death, that it must have been suffering for some time, as the tubercular disease was very advanced. The case points to the necessity for fresh legislation on the subject, or for more systematic instructions to both slaughterers and inspectors. Under the circumstances, the presiding magistrate could not well take any other course than he did; but it should not be in the power of any butcher to put into the market, even by chance, such carcases as those in connexion with which this case arose.

Emoluments of Scottish University Professors.

In the Parliamentary "nominal return of principals, professors, and other officers in each of the Scottish Universities entitled after the required period of service to retire upon pensions," the following figures are given. They are the salaries, fees, and other emoluments which would be taken into account in fixing pensions, and are for the year ending Dec. 31st, 1889.

Chair.	University of Edinburgh.	University of Glasgow.	University of Aberdeen.	University of St. Andrews.
Botany	£2189	£368	£753	—
Institutes of Medicine	2581	1115	627	—
Practice of Physic	1571	919[2]	306	£297
Chemistry	3450	1672	—[4]	234
Anatomy	3000[1]	2238[3]	1826	—
Midwifery	1230	598	379	—
Natural History	2400	1094	1054[5]	298
Materia Medica	2235	956	494	—
Clinical Surgery	1068	420	—[6]	—
Medical Jurisprudence	953	622	431	—
Surgery	1615	1239	715	—
General Pathology	2351	—[3]	787	—
Clinical Medicine	—[2]	572	—[6]	—

[1] Average. [2] Included in salaries attached to chairs of Practice of Physic, Midwifery, Materia Medica, and General Pathology. [3] No Professorship. The Lecturer on Pathology in the Western Infirmary does all the work and receives the fees, but has no seat in the Senate. [4] Recently appointed. [5] Taken by both arts and medical students. [6] Work done by the surgeons and physicians in the infirmary. [7] Including value of official residence. There are only three medical chairs in St. Andrews

Pensions.

Edinburgh	Emeritus Professor of Natural History	£385	0 6
Glasgow	" " of Materia Medica	153	9 4
Aberdeen	" " of Chemistry	512	7 11
St. Andrews	" " "	145	15 1

Edinburgh University Court.

At the meeting of the Edinburgh University Court held last Monday, under the presidency of Principal Sir William Muir, Mr. Charles Hunter Stewart, M.B., C.M., and Mr. Arthur Eugene Clayton, M.A., were appointed to be the assistant registrars for the revisal, in December next, of the Register of the General Council of the University for 1891. The proposed amended regulations as to the recognition of teachers of medicine under Ordinance No. 8, Section VI. (4), were considered, and the regulations on which the Senatus did not suggest any further amendments were approved and adopted. The Committee of the Old Court on Class Returns of University Professors and Recognised Teachers of Medicine, 1888–89, submitted memoranda thereon, which were considered; and it was ordered that the Professors' Returns should be sent back to the Senatus for preservation as usual. A report by the Finance Committee on an application from the Professor of Pathology as to the lighting of the pathological class-rooms was considered and disposed of.

Edinburgh, Feb. 25th.

GLASGOW.

The Victoria Infirmary.

THIS, the latest addition to the medical charities of Glasgow, was opened with much ceremony by the Duke of Argyll on Feb. 14th, and is now in full operation. The infirmary stands on one of the most beautiful sites in the neighbourhood of Glasgow, on the historic battlefield of Langside, and overlooking Queen's-park. The building is planned on the well-known pavilion system, only one pavilion and the entire administrative block being in the meantime erected, giving space for eighty patients. The large wards are over 70 ft. in length by 26 ft. wide, and have a clear floor space, there being no fireplace or pillars in any of them. On entering the wards one immediately notices the entire absence of cornicing and woodwork, the intersection of the walls and ceiling being rounded off, and the corners of the windows finished with a beaded moulding flush with the plaster. This simple style of finishing is, however, relieved by the lower walls being covered to a height of 5 ft. with cream-coloured enamelled tiles. Another notable feature is the absence of square corners, all corners being rounded for the purpose of preventing the deposition of dust and animal effluvia of a poisonous nature. All the large wards, principal corridors, staircases, and the board-room are lighted by electricity. In the wards a small electric lamp is placed above each bed, and this is made movable so that it can be carried round the patient for purposes of examination. A special feature of the infirmary is the method by which the whole wards, rooms, and corridors are heated and ventilated. This work was done to the design of Mr. Wm. Key, one of the governors. So satisfactorily are these arrangements working that the whole building can have the air expelled from it and be entirely filled with washed and warmed fresh air in the space of eight minutes; and as this requires 50,000 cubic feet of air per minute, the benefit can be readily understood. This system of ventilation is entirely new to Glasgow, and, so far as I am aware, this is the only infirmary ventilated on this principle. Since the day of opening generous promises of pecuniary support have been received. One magnificent donation of £10,000 has also been sent in, and several smaller sums amounting to an encouraging figure. The infirmary thus starts under favourable auspices, and with a fair sum in hand for maintenance and building purposes. Indeed, it is not at all improbable that with the money now in their possession the governors will soon begin the erection of an additional pavilion, which would mean an addition of about sixty beds to the hospital accommodation.

Superstitious Practices in the Highlands.

Superstition, especially when connected with popular medicine, dies very hard, and nowhere is it more tenacious of life than in the highlands of Scotland. In illustration of this may be quoted an incident recently published by Dr. Stewart of Nether Lochaber. Dr. Stewart's informant had to visit a shepherd on business in a certain glen in the month of March last. Finding no one in the house, he went along the road a bit, and was attracted by smoke in a wooded hollow beside a burn, where he thought the women were having a washing. Reaching the top of a steep bank, and looking down to a little plot of grass beside the burn, he saw two women standing opposite each other, holding between them vertically a hoop which, except where it was held, was wrapped in something that was burning briskly. Through this hoop of fire two other women were engaged passing backwards and forwards to each other a child eighteen months old. When this was sufficiently accomplished the child was handed to its mother, who was standing near, earnestly watching the ceremony, while the hoop was dropped into a pool, hissing and spluttering as it sank. On getting home the narrator told his wife what he had seen, and set her to try and unravel the mystery. She succeeded, and this is what she found. The child in question was in ill-health, constantly clamouring for food, which it ate voraciously, without benefiting one whit. It had a dried and shrivelled aspect, and was, besides, fractious and fretful in temper. Medicine made it worse. What was now to be done? They called in a "Wise Woman," who discovered that the child was under the influence of an "evil eye" of great power, from which there was only one means of escape—namely, by the rite we have described, called in Gaelic *Beannachd na cuairte*—"The Blessing of the Round, or of the Circle." Who had put the spell upon the child? A beggar-woman who refused bread and would only take money. There was no money to give her, and the hag, after peering into the child's face and saying "O, what a beautiful child!" hobbled off with a chuckling laugh. From that date the little victim dwindled away, and, although a cormorant for food, became a fractious weakling. No sensible person will, of course, believe that the rite had any healing effect upon the child. Curiously enough, however, its health began to improve from that date. It should be mentioned that the little fellow was passed and repassed through the fiery hoop eighteen times, once for each of the moons that represented his age. One thing further was done. When taken home the child was fed and put to bed, while the Wise Woman suspended above his head when he had fallen asleep a small bunch of *roid*, or bog-myrtle, which was on no account to be touched until she came herself to take it down at the next crescent moon. This she did, which was the proper conclusion of the ceremony. Superstitions of a similar kind are also occasionally noticed farther south than Lochaber. Not long ago it was recorded in the Glasgow papers that in one of the streets of Maryhill, a town on the outskirts of Glasgow, a number of mothers were seen passing certain children under the belly of a donkey, and round again over its back, this being done a given number of times, according to the age of the child. The object of this proceeding was the cure of whooping-cough!

Royal Hospital for Sick Children.

The annual report of this institution, which was recently permitted by Her Majesty the Queen to term itself "Royal," shows that in the past year 566 patients were admitted, as compared with 540 in the preceding year; the medical cases numbered 337 and the surgical 229. The average daily number under treatment was 61. The percentage of deaths to the total discharged was 9·26; but deducting six deaths which took place within twenty-four hours after admission, the death-rate was 8·3 per cent. The ordinary expenditure of the hospital amounted to £2785. In the dispensary 4167 new patients were treated, with an aggregate of 16,206 attendances. It was pointed out further in the report that 49 per cent. of all the children treated on the medical side of the dispensary were affected with diseases of the lungs and nutritive organs, which are unquestionably the main scourges of child-life in Glasgow.

Professor Gairdner on Influenza.

At the annual meeting of the Glasgow and West of Scotland Branch of the British Medical Association held recently in the Western Infirmary, Glasgow, Professor Gairdner gave an address on Influenza. Having remarked on previous epidemics of the disease, he said that the present outbreak had presented some very inexplicable peculiarities; and if the microbe was discovered, possibly it might shed some light upon the matter. There had been a very remarkable absence of the disease from the common lodging-houses, and he confessed that there had been wonderfully little of it seen in his hospital ward. On the other hand, Dr. Yellowlees had given him a written statement, showing that there had been quite a marked epidemic at Gartnavel. That, he believed, was almost the only public institution in Glasgow where the epidemic character had been well pronounced.

Dr. Robertson had informed him that he had seen little or nothing of it in the Town's Hospital. Why it should have prevailed in one institution and not in others he could not tell. That was one of the mysteries, one of the erratic qualities, connected with it which remained for the future to solve; but because of this difficulty he did not see that it was necessary to deny the fact of its existence.

Glasgow, Feb. 25th.

DUBLIN.

(FROM OUR OWN CORRESPONDENT.)

University of Dublin.

A MEETING of the College Senate was held last week for the purpose of electing a representative on the Council of Classis Tertia. Dr. E. H. Bennett, Professor of Surgery in the School of Physic, was unanimously re-elected.

The late Sir Robert Kane, F.R.S.

The Royal Geological Society of Ireland, at a recent meeting, passed the following resolution: "That the Society desires to express its deep sorrow at the death of its distinguished former president and original member, Sir Robert Kane, LL.D., F.R.S., and that the secretaries of the Society be now directed to offer its sincere and respectful condolence to his family on the occasion of their great bereavement."

Royal Barracks, Dublin.

Some cases of typhoid fever have appeared among the troops stationed in these barracks, three of the men of the 4th Hussars having contracted the disease. Sanitarians appear to be unable to trace the cause or causes of these repeated outbreaks, which have given these barracks such an unenviable notoriety, and some advocate the closing of buildings which have proved so dangerous to the inmates of the Royal Barracks. Where the authorities will locate the troops at present quartered at the Royal Dublin Society's premises at Ball's Bridge on their leaving next month is not as yet known, but certainly they ought not to be housed in barracks which are notoriously unhealthy. Sir Redvers Buller, the Quartermaster-General, has arrived in Dublin to superintend the arrangements for constructing the new barracks in this city. On Monday last, accompanied by Prince Edward of Saxe-Weimar, he inspected the sewerage arrangements of the Royal Barracks. It appears that the alterations carried out by the contractors have disclosed the fact that the condition of the sewerage pipes which so far have been uncovered has had much to do with the unhealthy state of the barracks. In one case a nine-inch pipe was jointed to a fifteen-inch pipe by brickwork which permitted the sewage to escape in large quantities. Without going into particulars, it may be stated generally that the sewerage system will require to be thoroughly overhauled before these barracks can be considered as fit to be used by Her Majesty's troops.

Sewer at Ballybough Bridge.

The matters discharged from the sewer into the Tolka river at Ballybough Bridge has for a long period caused considerable annoyance to the citizens in the vicinity, and repeated complaints have been addressed to the corporation in reference to the matter. The Public Health Committee have come to the conclusion that it would be desirable to divert the sewage discharged at Ballybough Bridge to a point nearer Dublin Bay, and have directed the borough surveyor to prepare plans with the object of carrying out this deviation of the sewage discharge, which will be submitted to the Town Council for their approval.

The Kingstown Town Commissioners have declined to adopt the Infectious Diseases Notification Act, 1889, in their township. Mr. Byrne Power, superintendent medical officer of health, refused to take the responsibility of advising the sanitary authority to adopt it, as he believed the Act to be defective. He remarks that the medical practitioner was bound to report any infectious case to the medical officer of health, but that there is no provision in the Act by which the medical officer was bound to take any further action.

An old pensioner, named James McKenna, who had taken part in the battle of Waterloo, died at Newry last week, aged 109 years. He enjoyed good health to the last, and was able to read without the use of spectacles.

Dublin, Feb. 25th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Cardiac Disease.

AT the last meeting of the Academy of Medicine M. Robin read, for Professor Renault of Lyons, a note on a new cardiac malady, or rather one hitherto not described, to which the author has given the name of "chronic essential segmentary myocarditis." This malady is characterised anatomically by softening of the cement substance which unites the cardiac muscular cells. The same phenomenon is met with in the accompanying myocarditis, valvular affections, pericarditis, or arterio-sclerosis, but in this instance it exists alone without any alteration of the serous membrane or of the cardiac vessels. Essential segmentary myocarditis is met with in old persons from sixty to eighty years of age, in gouty subjects, alcoholics, and over-worked persons, who present prematurely the features of senility. The most important indications of this malady consist in special rhythmic signs which defy all description, in which each successive sphygmographic tracing appears as if taken on a different individual. The following signs could be attributed to the malady: effacement of the heart impulse against the chest wall, the existence of a rectangular dulness, and the production of a medio-cardiac systolic bruit. He insists on the absence of enlargement of the liver or of scanty urine. It has been found that in middle-aged subjects it occurs after acute maladies, particularly after typhoid fever and alcoholism. Death, which is the usual termination, takes place by syncope; sometimes by rupture of the heart. Patients already suffering are particularly vulnerable; for instance, a common cold, a fall, or the least traumatism, might bring about a fatal issue. At the post-mortem examination of the heart the muscular tissue is flaccid, but is slightly enlarged. Even where the separation of muscle fibres is not distinct in the heart wall, it is distinctly perceived in the columnæ carneæ attached to the mitral valve. The treatment should consist in the employment of digitalis and tonics, and particularly of champagne. The obstinate and troublesome bronchitis which in old people accompanies segmentary myocarditis should be carefully attended to; and may be treated with digitalis and the ergot of rye.

Anæsthetics in Ocular Affections.

Some time ago Dr. Panas made some researches on erythrophleine as a local anæsthetic, but was obliged to give up on account of its irritating the eyes. Dr. Panas has since studied the local anæsthetic action on the eye of two new substances—viz., strophanthine and ouabaïne—the results of which he communicated to the Academy of Medicine last week. In one eye of a rabbit he placed two drops of ouabaïne every two minutes. If the other eye had been formerly anæsthetised, the drug took effect in five minutes, whereas it took nearly twenty minutes when acting alone. Mydriasis could also be produced later with strophanthine after a slight temporary myosis. These experiments showed that strophanthine had a more complete and lasting effect than ouabaïne. Employed in man, ouabaïne produced no anæsthesia whatever. Strophanthine had a most irritating effect on the conjunctiva, and produced inflammation and intense pain. Its employment is, therefore, not possible as a local anæsthetic. Cocaine remains to the present time the only local anæsthetic that should be employed in ocular therapeutics.

A Series of Lectures.

The Société de Médecine Pratique, which is one of the oldest medical societies in Paris, has started a series of public lectures on different hygienic subjects, to which the laity as well as members of the profession are admitted. The lectures will be delivered weekly by different lecturers, and will be continued to the end of April next. Dr. Dujardin-Beaumetz opened the series by a most interesting lecture on vegetable diet, which was well appreciated by a large audience. He began by showing that it was possible to live exclusively on vegetables, even in a rigorous climate (as exemplified by the inhabitants of Auvergne and of Brittany, where the poorer classes live on scarcely anything else), if milk, cheese, and eggs were added. The vegetable diet might be beneficial in defective action of the kidneys or of the digestive canal, in dilatation or other disorders of the stomach, in putrid diarrhœa, or in all maladies characterised by hyper-acidity. But while the vegetable diet rendered great service in therapeutics, man was omnivorous, and it was evident that he should suit his diet to climate and necessity.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Tenth International Medical Congress.

AN International Medico-Scientific Exhibition is to take place in connexion with the Tenth International Medical Congress, to be held in Berlin from the 4th till the 9th of August next. An organisation committee, consisting of Drs. Virchow, von Bergmann, Leyden, Waldeyer, and Lassar, is entrusted with the arrangements. Messrs. Doerffel, Hasnach, Holz, Loewenherz, and Windler have consented to co-operate as technical authorities. The great difficulty of finding suitable accommodation has at last been overcome. The exhibits will consist of improved scientific instruments and apparatus for biological, medical, and surgical purposes, new pharmacological preparations, new plans and models of hospitals, convalescent homes, and disinfection and bathing establishments, new arrangements for the tending of the sick, including baths and means of transport, and the newest apparatus for hygienic purposes. All announcements or inquiries are to be addressed to Dr. Lassar, 19, Karlstrasse, Berlin, N.W., with the word "Ausstellungs-angelegenheit" (exhibition matter) on the cover.

The Influenza Pandemic.

At a recent meeting of the Berlin Medical Society Prof. Leyden pointed out that the bacteriology of influenza still needs clearing up. All were agreed that it was an infectious disease, but whether its propagation was miasmatic or contagious was still a question. Its acute character was clear from its sequelæ, which appeared analogously to those of other acute diseases, such as scarlet fever, measles, and typhus. One of those sequelæ—which were by no means to be regarded as accidental complications, for they were observed in all influenza epidemics—was nephritis, which he had observed three times in the Charité. Affections of the heart also belonged to this category, but the most frequent and dangerous of the sequelæ of influenza was pneumonia, which had proved so fatal in the last epidemic. This influenza-pneumonia differed in many respects from common pneumonia. The Prussian Minister of Religious, Educational, and Medical Affairs has requested the Presidents of the Prussian provinces to do all that in them lies to facilitate and promote the inquiries of the medical societies regarding the recent epidemic.

Home for the Deaf and Dumb, Copenhagen.

Malling Hansen, head of the Home for the Deaf and Dumb in Copenhagen, has made an interesting observation. For seven years past all the inmates have been weighed every day. The greatest increase of weight was always observed in autumn and the first month of winter, whereas it was slight till the middle of April, after which the weight diminished till late in summer. This winter, however, the first deviation from this rule occurred. From Nov. 23rd till Dec. 21st the increase ceased altogether in the case of the girls, and sank in the case of the boys to 200 grammes—i.e., to two-fifths of the usual amount. No change whatever had been made in the fare or in any other matter that could possibly affect the condition of the inmates. Nor were any of them ill, only a few suffering from slight colds, while six of the teachers suffered severely from influenza.

The Nineteenth Congress of Surgeons.

The nineteenth Congress of Surgeons is to sit in Berlin in Easter week. It will be opened at noon on April 9th, in the great hall of the University, in which the afternoon sittings will also be held. The morning sittings, which will be devoted to the demonstration of preparations and the exhibition of patients, will be held from ten till one in the University Hospital. Announcements of lectures &c. should be addressed to Geheimrath Professor Gurlt, who is permanent secretary. On the first day Kappeler of Münster will speak on Ether and Chloroform Narcosis, and Brauns of Tübingen on the Treatment of Tuberculous Joint and Gravitation Abscesses by Injections of Iodoform. The committee will report on the present state of the Langenbeck House project, and the successful acquisition of a site for it.

The Twelfth Congress of Balneologists.

The twelfth Congress of Balneologists will be held here from March 6th till March 9th, in the lecture hall of the Pharmacological Institute of the University, Professor Liebreich in the chair.

Chloroform Narcosis.

Robert Ostertag, municipal veterinary surgeon here, has recently made experiments in chloroform narcosis in the Pathological Institute. He found that a remarkable formation of fat took place in the internal organs of the animals experimented on. Some of them died sooner or later after the experiment. The fatal effect of the chloroform showed itself in paralysis of the heart, caused by a sometimes but slightly perceptible anatomical alteration of that organ and by a gradual surcharging of the blood with carbonic acid.

The last news I have read of Professor von Nussbaum's condition, dated the 18th inst., announced a decided improvement.

Dr. Eugen Lellmann has been appointed Professor of Chemistry at Tübingen. He has been a private lecturer for five years. The most important of his writings is a book entitled "The Principles of Organic Chemistry."

A festal meeting is to be held in the Town Hall of Berlin on the 11th prox. in honour of Professor Kekulé of Bonn, who made the important discovery of the structure of benzine twenty-five years ago. It is hoped that the Emperor will be present.

Berlin, Feb. 25th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Influenza Epidemic.

ABOUT Christmas Day the influenza first appeared in Alexandria, and although it has not yet been reported among the 1000 soldiers of the Army of Occupation, it has been very prevalent amongst the civilian population. The cases have been less serious than in Europe, and the few deaths amongst Europeans have taken place in people already enfeebled by previous disease. Cats and dogs are said to have been affected, but not horses. The average death-rate for this time of year among natives in Alexandria is 48·3 per 1000, but for the week ending Jan. 23rd it went up to 58·1, and the following week to 70·1, since then falling to 67·3 per 1000. The number of deaths in the last week has increased from 203 to 245, and the greater part of this increase is due to diseases of the respiratory organs. In Cairo the influenza was first noticed about Jan. 10th, and is still mildly prevalent, though it is only during the last three days that cases have occurred among the 2000 English troops. No serious cases have been reported, but many people have had to spend three days in bed on account of fever and general pains, and a few rare cases neglected at the onset have developed pneumonia. The natives are attacked like the white population, and call the illness *aiya el moda*, or the fashionable disease! The veterinary surgeons have not yet been able to discover any cases of influenza among animals. The Cairo death-rate has gone up from 288 to 345 per week, but the mildness of the epidemic would seem to be due to the dryness and warmth of the air here. Bronchial symptoms in this climate are the exception, and the coryza has hardly been seen at all. In Alexandria, on the other hand, where the weather is damp and rainy, the disease seems to have been more easily able to establish itself. Influenza as seen here has a faint resemblance to dengue, but is apparently a much milder disease than the latter, and has not yet been noticed to have any accompanying eruption. One of the last cases seen here was in a medical man who had suffered severely from the disease in Scotland in 1848. *Guinea-worm.*

Several cases of filaria medinensis have lately been seen at Kasr-el-Aini Hospital among Soudanese and Abyssinian children, who had contracted the worm in their feet and legs before reaching Egypt. This parasite is very rare among the Egyptians, though they must often drink from stagnant pools, and therefore run a risk of becoming unwilling hosts. M. Piot, a French veterinary surgeon, has just written a paper upon the presence of Guinea-worm among dogs, foxes, and jackals in Egypt. In a spaniel he found five worms, in a mastiff four, and in a jackal three. The worms present an aspect similar to that seen in human beings, and are always near the skin. Two cases of this worm in the legs of dogs have been seen lately by English veterinary surgeons. This is almost the first time that this parasite has been found among lower animals.

School of Medicine.

A commission was lately appointed to consider what

practical reforms could be introduced to improve the condition of the native medical student. The proposals of the three English members of the commission were negatived by the five native members, who were all interested in the present unsatisfactory state of the school. But since then the Council of Ministers has adopted the reforms, and it is hoped now that Englishmen may be found able and willing to teach the English language, anatomy, surgery, medicine, and ophthalmic surgery. This English instruction will be of a practical kind only, and the native professors will continue as at present to deliver theoretical lectures in Arabic. This will be a great help towards making the school a little more useful than at present, and it is to be hoped that native opposition will soon permit more extended improvements. It is not too much to say that the instruction of any value received to-day by the students is all in the wards of the hospital after they have left the school.

Kasr-el-Aini Hospital.

Riaz Pasha, the Premier, and Ali Pasha Moubarek, Minister of Education, have visited the hospital for the first time for many years, and are much pleased and surprised at its general air of comfort and cleanliness. They fully appreciate the marked improvements introduced in the female wards by the four English sisters. The following thirty operations were lately done by a member of the staff during the four weeks' temporary absence of Mr. Milton: 7 excisions of cervical glands, 3 of inguinal, 2 of axillary, 2 of submaxillary, and 1 of elbow glands; 6 operations for necrosis and caries, 2 for lupus, removal of uterine appendages and supra-vaginal hysterectomy; excision of hip; amputations of shoulder-joint, leg, and breast; excision of eyeball; and cataract extraction. The cases were all successful, excepting the supra-vaginal hysterectomy, which died of peritonitis on the twenty-fourth day after the operation. This was the first time a fibroid uterus had been removed in this hospital, though Mr. Milton has since done one successfully and two previous cases had been attempted, and necessarily abandoned.

Cairo, Feb. 17th.

Obituary.

CAVALIERE V. CAPECCHI.

THIS veteran physician and alienist died in Florence on Feb. 10th, in his eighty-eighth year. An *alumnus* of the Florentine school, his studies in medical observation were prosecuted at a time when clinical training occupied many of the hours now given to the physiological and pathological laboratory, with the result that his qualifications on beginning professional life were more practical than scientific. The physiognomy of disease became familiar to him early in his career, and the therapeutics which seemed, from clinical experience and induction, to be best adapted to each individual case formed his appropriate armoury. So successful was he in hospital and private practice that on the first visitation of cholera in 1832 he was commissioned by the Grand Ducal Government to study the disease in the countries where it had appeared in most virulent form. He accordingly repaired to Germany and watched the conditions under which the epidemic seemed to prevail with such closeness and penetration that on his return to Tuscany he was at once installed as the most trusted deviser of prophylactic measures. He more than justified the Grand Duke's confidence, and the comparative mildness of the epidemic in Florence and the country around was universally attributed to his wise and energetic precautions.

A new field was opened up to him in the direction of the Manicomio (lunatic asylum) of Bonifazio, in Florence, and here again he showed his peculiar power in reading the characters of disease and in applying the treatment suggested by a careful and complete induction of cases. He was one of the first to substitute for mechanical restraint the controlling presence of a sufficient staff of attendants, and on the establishment of a systematic *clinica psychiatrica* he brought it up to a high standard of efficiency.

Yet again the Government availed itself of his professional and admistrative power in appointing him Director of the Sanità Marittima of Leghorn, a post which he filled with great ability and success, particularly in the second great cholera visitation of the century. When that office was suppressed he returned to Florence, and, though by this time advanced in years, he practised a good deal as a consultant and took an active interest in promoting institutions of relief for the sick poor.

He was a modest man, of singularly frugal habits, full of respect for authority till it seemed to conflict with the public good, generous almost to a fault, and so constant in his appeal to principle that, in common with his worthy contemporary, Dr. Bufalini, he gave the impression of being an ethical philosopher even more than an active consultant and man of affairs. His funeral, which took place on the 11th inst., was attended by representatives of all the public, scientific, and professional bodies of Florence, as well as by delegates of the Italian Government and of the numerous foreign societies of which he was corresponding member.

Medical News.

UNIVERSITY OF LONDON.—The following candidates passed the Intermediate Examination in Medicine in January last:—

First Division.—Annie Mary S. Anderson, London School of Medicine for Women; John Evans, University College, Liverpool; Cecil Benj. Thomas Musgrave, University College; Chas. Edward Salter, Guy's Hospital; Archibald Campbell Stevenson, University College; Thomas Major Tibbetts, Queen's College, Birmingham; Thomas Warner, King's College; Stephen Longmore B. Wilks, Yorkshire College; John Williamson, St. Bartholomew's Hospital; Joseph Green, Owens College.

Second Division.—William Bligh, Guy's Hospital; George Gilbert Clarke, St. Mary's Hospital; Stephen Geo. Floyd, Guy's Hospital; George Percy Jerome, Queen's College, Birmingham; William Black Jones and Bernard Henry Frederick Leumann, St. Bartholomew's Hospital; Harry Driffield Levick, St. Thomas's Hospital; James Morrison, St. Bartholomew's Hospital; Thomas Olver, King's College; John Herbert Parsons and Arthur Walton Peake, Bristol Medical School; Ed. Arthur Perram, Walter Ley Pethybridge, B.Sc., and Thomas Morgan Jones Powell, St. Bartholomew's Hospital; Horace Bagster Wilson, Bristol Medical School.

ARMY MEDICAL STAFF.—The following is the list of the successful candidates at the recent competitive examination for commissions in the Army Medical Staff:—

	Marks.		Marks.
R. W. H. Jackson	3005	P. H. Whiston	2825
G. S. McLoughlin	2935	G. A. T. Bray	2765
W. W. O. Beveridge	2805	R. J. W. Mawhinney	2750
A. E. Smithson	2860	H. J. Parry	2700
B. Forde	2835	J. D. Ferguson	2660

NAVAL MEDICAL SERVICE.—The following candidates, who competed at the examination recently held at Burlington House for appointment as Surgeons in the Royal Navy, have been successful:—

	Marks.		Marks.
R. H. J. Browne	3132	G. G. Borrett	2735
H. T. Kelsall, M.B.	3088	W. H. S. Stalkartt, M.B.	2716
R. Barnard	3010	G. A. S. Bell	2614
F. W. Parker	2792	E. Caffey, M.B.	2505
P. N. Randall, M.B.	2758	J. A. Keogh, M.B.	2493

INDIAN MEDICAL SERVICE.—The following is the list of the candidates for the above Service who were successful at the competitive examination held at Burlington House on Feb. 10th and following days:—

	Marks.		Marks.
H. Smith	3205	C. F. Fearnside	2970
J. Jackson	3185	P. Carr-White	2965
A. J. Macnab	3135	H. B. Luard	2965
W. Molesworth	3100	E. H. Wright	2965
J. B. Jameson	3065	A. Street	2955
E. W. Hore	3060	W. McK. Wilson	2950
W. D. Sutherland	3050	G. G. Giffard	2945
C. N. C. Wimberley	3050	A. J. Heath	2930
C. A. Johnston	3030		

Of the 71 candidates who competed for the 17 appointments, 68 were reported qualified.

EARLY MATERNITY.—It is reported that a girl aged thirteen years and eight months last week gave birth to a boy in the Vienna Foundling Hospital. The child does not weigh quite 3lb., and is not likely to live.

SHEFFIELD HOSPITAL.—A generous local donor has made an offer of £6150 towards the contemplated erection of an entirely new dispensary, or out-patients' department, on an eligible and convenient site in Westfield-terrace.

THE TORONTO UNIVERSITY.—The Prime Minister, the Earl of Carnarvon, the Marquis of Lorne, Sir James Paget, and the Lord Mayor have joined the committee for securing the restoration of the Toronto University Library, recently destroyed by fire.

THE SANITARY INSTITUTE. — The Duchess of Albany attended, on Monday last, the first of a course of lectures given by Dr. A. T. Schofield in the Parkes Museum. The lectures are specially intended for ladies; the first dealt with the training of children.

AN INTERNATIONAL EXHIBITION OF MINING AND METALLURGY will be held during the forthcoming summer at the Crystal Palace, Sydenham. No doubt can be entertained of the importance and interest of the exhibition, and already the project has received large and influential support.

PRESENTATION. — F. J. Paley, M.D. Lond., on his resignation of the office of house surgeon at the Sussex County Hospital, has been presented by the hospital officers and nurses residing on the premises (joined by three gentlemen who, by their special request, were allowed to be subscribers) with a writing table and other suitable library requisites, together with a case of surgical instruments, as a mark of esteem.

THE ABERDEEN GENERAL DISPENSARY.—The directors of the General Dispensary have issued their report and financial statement for the year ending Dec. 31st, 1889. The report shows that during the year 10,623 cases were treated by the medical officers. There are departments for the throat, for vaccination, and for diseases of women and children. Sixty-one students have been enrolled. Eleven nurses are attached to the institution, and it is hoped that a maternity hospital may soon be established in connexion with it. The accounts show an income of £1322, and an expenditure of £905, leaving a balance on the right side of £416.

ROYAL HOSPITAL FOR CHILDREN AND WOMEN.—The annual meeting of the governors was held at the hospital, Waterloo-bridge-road, on the 21st ult. The Lord Mayor presided, who was accompanied by the Lady Mayoress and the Sheriffs of London and Middlesex. The report stated that, owing to an epidemic of scarlet fever, the wards were closed for a considerable time for necessary disinfection and cleaning, and extensive alterations had also been made in the sanitary arrangements. In consequence there had been a great decrease in the total number of in-patients. The number during the year was 315; there were 7105 out-patients. The attendances were 29,586, and home visits to children 416. The year closed with a liability of £450. The Lord Mayor made a forcible appeal on behalf of the charity. Subscriptions amounting to about 100 guineas were announced.

UNIVERSITY COLLEGE HOSPITAL. — The Lord Mayor presided at the festival dinner in aid of the funds of this hospital, which took place on Tuesday at the Hôtel Métropole. The reliable income is £6000, whilst the expenditure exceeded £20,000. The entire rebuilding of the hospital is in contemplation, towards which £11,000 has been promised, but a sum of over £30,000 is required before any work can be begun. During the past year ninety-five patients had been sent to the Wakley Convalescent Home, which is under the management of the hospital. The daily average number of in-patients was 179, and the total cost per bed £50 0*s.* 10*d.* The aggregate receipts had been totally insufficient, the year closing with an indebtedness of upwards of £10,000. In response to the Lord Mayor's advocacy of the claims of the institution upon public benevolence, subscriptions amounting to over £1500 were realised.

THE SWEATING COMMITTEE.—The Sweating Committee, which has just been reappointed by the House of Lords for the consideration of its report, has, it appears, encountered a difficulty. Lord Dunraven, on the reassembling of the Committee, laid a draft report before their lordships, which dealt in considerable detail with certain recommendations, the object of which was to remedy to some extent the grievances now complained of by the poor people most affected. Exception to this report was taken by several influential members, and, after a consultation, Lord Thring drew up an alternative paper, which is now under the consideration of the Committee. At Wednesday's sitting suggestions for a compromise were unavailing, and their lordships adjourned. Lord Thring is, it is stated, about to draft a *précis* of some important evidence, and the Committee will be again summoned as soon as this is done.

FOOTBALL CASUALTIES. — On Feb. 22nd, in an Association football match at Birmingham, a young man named Collins, of Coventry, was heading a ball, when he slipped, and another player fell upon him. His spine was injured, and he lies in a paralysed condition in the Birmingham General Hospital.—Alfred Cummings, a soldier, aged twenty-seven, died in the Manchester Infirmary on Feb. 20th from injuries received to his spine in a football match played at Cheetham-hill on Feb. 8th. The game was played under Rugby rules, and conducted in a friendly manner.

KING'S COLLEGE HOSPITAL.—Mr. Richard Twining, the treasurer, presided at the fifty-first annual meeting, held at the hospital last week. A very favourable report was presented. It showed that at the close of last year (the jubilee year of the hospital) the institution was practically free of debt. In consequence, early in December last a ward which had been closed for some time was reopened, and fifteen additional beds for women were rendered available. Only one ward remained unused. During the year the work of the hospital had increased, both in respect to the in- and out-patients; but, notwithstanding, the expenditure had been reduced.

CHARING-CROSS HOSPITAL.—The sixty-ninth annual meeting was held at the hospital on the 19th ult. Mr. J. Martin presided. The report showed the number of in-patients for the past year was in excess of any previous year, whilst the out-patients numbered 2080 more than in 1888. The financial support received had not increased in the same proportion. The donations and legacies were less, but there was a slight addition to the annual subscriptions. Certain structural alterations were charged to the expenditure of the year, and substantial progress had been made with the new medical school. The site selected for the convalescent home was at Clacton-on-Sea, in respect to which an appeal would be made for funds and also for additional public support for the requirements of the hospital.

NATIONAL HOSPITAL FOR CONSUMPTION AT VENTNOR. — The twenty-first annual meeting of the governors of this convalescent institution for consumptives was held at the London office, 34, Craven-street, Charing-cross, on Feb. 25th. Mr. Herbert C. Saunders, Q.C., chairman of the board of management, presided, in the unavoidable absence of the president, the Earl of Rosebery, who was presiding at the London County Council meeting. The number of in-patients under treatment had increased to 759, as compared with 735 in the previous year, and resided in nearly every county in the kingdom. The receipts reported amounted to £12,720, which included £3795 from legacies. In addition to the ordinary expenses of maintenance (£9350) the sum of £1893 had been expended in improvements to the heating and ventilation. Regret was expressed at the loss of Mrs. Hamilton, a benefactress who used to defray the chaplain's stipend, which will now fall upon the general hospital funds. The retiring members of the board were re-elected, and votes of thanks to the honorary and medical officers and the chairman brought the proceedings to a close.

MEDICAL NOTES IN PARLIAMENT.

Lunacy Law.

IN the House of Lords on Friday, Feb. 21st, the Lord Chancellor presented a Bill for the consolidation of the law of lunacy. It was read a first time.

Food and Drugs Act.

In the House of Commons on Feb. 20th, Mr. Matthews, in reply to Mr. O. V. Morgan, said that twenty-three cases under the Food and Drugs Act, and thirteen under the Margarine Act, had been brought before the magistrates at the Wandsworth Police-court during the past year.

In reply to a further question, on Thursday, Feb. 27th, asking whether, in view of the varying and insufficient penalties imposed upon offenders under this Act, steps would be taken to secure uniformity of practice of the police magistrates in the metropolis, the Home Secretary announced that he proposed with that view to draw the attention of the magistrates to the subject.

Prosecution of a Surgeon.

Replying to Mr. H. Fowler, the Attorney-General acknowledged that his attention had been called to the trial of a surgeon in Birmingham for manslaughter, which Mr. Justice Wills had characterised as a very harsh prosecution. The case was one of a charge against a medical man for causing the death of a woman in humble circumstances, and the

coroner's jury had found a verdict of manslaughter. The prosecution was undertaken by the Director of Public Prosecutions, who acted throughout under the advice of two members of the Midland Circuit of great experience in criminal cases. Having considered the depositions, he was of opinion that, as the Grand Jury had found a true bill, the Director was right in presenting the case for trial. Certainly the responsibility, if any, rested with the learned counsel and not with him. Had the Grand Jury thrown out the bill, it was not intended to offer any evidence in support of the coroner's inquisition. The costs of the prosecution, which the judge disallowed, would be paid out of the vote for the expenses of the Public Prosecutor.

Pleuro-pneumonia.

In reply to Dr. Farquharson's question on Feb. 25th as to whether it was intended to establish an experimental station to discover the nature of pleuro-pneumonia, Mr. Chaplin said that the annual report of the Veterinary Department would contain a statement of all that had been done on this subject by scientists up to the present time. It was being prepared, and, having regard to this fact and to the conflicting evidence given before the Departmental Committee which was appointed to inquire into pleuro-pneumonia and tuberculosis in 1888, it appeared desirable to wait for the statement referred to before any further steps were taken.

Typhoid Fever at the Curragh Camp.

On Feb. 25th, Colonel Dawnay asked the Secretary of State for War if he could explain how it happened that the War Office authorities quartered the 3rd Battalion Grenadier Guards last autumn at the Curragh Camp in huts previously condemned by the medical authorities, with the result that there was another outbreak of typhoid fever, from the effects of which four officers in the regiment nearly died.—Mr. E. Stanhope replied that only one case was reported as having originated there in 1888, and there was no ground for anticipating the unfortunate result of quartering the Grenadier Guards there. All arrangements for accommodation of troops in Ireland were made by the general officer commanding, and were subject to local considerations, with which the War Office authorities had nothing to do.

Sanitary Registration of Houses.

On Feb. 26th Dr. Farquharson obtained leave to bring in a Bill for the sanitary registration of houses.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.

ANSON, G. E., M.A., M.D., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

ASPINALL, S., L.R.C.P., L.R.C.S. Edin., has been appointed Surgeon to the Erdington Dispensary.

ATKINSON, GUY C. B., M.R.C.S., L.S.A. Lond., has been appointed Medical Officer and Public Vaccinator for the Stotfold District of the Biggleswade Union.

BARTON, G. H., L.R.C.P. Edin., M.R.C.S., has been appointed Medical Officer for the Seventh District of the Lincoln Union.

BOYCOTT, A. N., L.R.C.P., M.R.C.S., has been appointed Resident Accoucheur to St. Thomas's Hospital.

CAIGER, F. F., M.D. Lond., has been appointed Acting Medical Superintendent of the South-Western Hospital, Metropolitan Asylum District.

CORBETT, L., B.A. Cantab., L.R.C.P., M.R.C.S., has been appointed Non-resident House Physician to St. Thomas's Hospital.

COWEN, T. P., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

DE JERSEY, W. B., B.A. Cantab., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant for Diseases of the Ear to St. Thomas's Hospital.

DICKSON, T. H., B.A. Cantab., L.R.C.P., M.R.C.S., has been appointed Assistant House Physician to St. Thomas's Hospital.

DONOVAN, W., L.R.C.P., L.R.C.S. Edin., has been reappointed Senior Surgeon to the Erdington Dispensary.

DOWNIE, T. TAYLOR, M.B., C.M. Glas., has been appointed Honorary Medical Officer to the Homes of the Old Colonists' Association of Victoria, North Fitzroy, Melbourne.

FORWARD, F. E., L.R.C.P., M.R.C.S., has been reappointed Resident House Physician to St. Thomas's Hospital.

GALLETLY, JOHN, M.A., M.B., C.M. Edin., has been appointed Medical Officer for the Rippingdale District of the Bowen Union.

GERVIS, H., M.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

GRANGER, E. B., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Kettlewell District of the Skipton Union.

GRAY, WALTER, L.R.C.P. Edin., M.R.C.S., has been appointed Medical Officer for the Fourth and Fifth Districts of the Holsworthy Union, vice Ash, resigned.

GREEN, H. W. GORDON, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to St. Mark's Hospital for Fistula, City-road, E.C.

HARRIS, J. H., M.R.C.S., L.S.A., has been appointed Medical Officer for the Ugborough District of the Totnes Union.

HEYWOOD, C. C., B.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant for Diseases of the Throat to St. Thomas's Hospital.

HUMPHRYS, C. B., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the Seventh District of the Tonbridge Union, vice White, resigned.

JONES, S. H., F.R.C.S., L.S.A., has been reappointed Clinical Assistant for Diseases of the Skin to St. Thomas's Hospital.

LAMBERT, T. W., B.A. Cantab., L.R.C.P., M.R.C.S., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

LANKESTER, A. C., L.R.C.P., M.R.C.S., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

LOW, H., B.A. Cantab., L.R.C.P., M.R.C.S., has been appointed Senior Obstetric Clerk to St. Thomas's Hospital.

MOGG, J. A. H., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the Feckenham District of the Alcester Union.

PERCIVAL, J. M., M.R.C.S., L.S.A., has been appointed Medical Officer for Chichester, vice Freeland, resigned.

PORTER, F. J. W., L.R.C.P. Lond., M.R.C.S., L.S.A., has been appointed House Surgeon to the London Hospital.

PRINGLE, A. Y., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant for Diseases of the Throat to St. Thomas's Hospital.

PRYCE, T. D., M.R.C.S., L.S.A., has been appointed Honorary Consulting Surgeon to the Nottingham General Dispensary, vice Taylor, resigned.

STABB, A. F., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

STOKES, W. G. G., B.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant for Diseases of the Skin to St. Thomas's Hospital.

TOLLER, S. G., L.R.C.P., M.R.C.S., has been appointed Resident House Physician to St. Thomas's Hospital.

WICKHAM, G. H., B.A. Cantab., L.R.C.P., M.R.C.S., has been reappointed Clinical Assistant for Diseases of the Ear to St. Thomas's Hospital.

WRIGHT, J. R., M.R.C.S., has been appointed Medical Officer for the Cheswardine District of the Drayton Union.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement.

ADDENBROOKE'S HOSPITAL, Cambridge.—Resident House Surgeon. Salary £65 per annum, with board, lodging, and washing in the hospital.

ALNWICK INFIRMARY.—House Surgeon. Salary £120 per annum, with furnished apartments, attendance, coal, and gas, but without board.

COUNTY OF WORCESTER.—County Medical Officer of Health. Salary £800 per annum, with such allowances for travelling expenses as may be sanctioned by the Council.

COUNTY PALATINE OF LANCASTER.—Medical Officer of Health for the Administrative County of Lancaster. Salary £800 per annum, with a reasonable allowance for travelling expenses.

DURNESS, Sutherlandshire.—Medical Officer. Salary £150 (with practice, population 1000), and free house. (Apply to the Inspector of the Poor.)

ECCLES AND DISTRICT MEDICAL ASSOCIATION.—Assistant Medical Officer.

HOSPITAL FOR WOMEN (the London School of Gynæcology), Soho-square, W.—Clinical Assistants in both Out-patient and In-patient Departments.

KING'S COLLEGE, London.—Professor of Physiology.

LONDON HOSPITAL MEDICAL COLLEGE, Turner-street, Mile-end, E.—Two Assistant Demonstrators of Anatomy. Salary £90 per annum each.

RECTOR, Ladock, Grampound-road, Cornwall.—Surgeon to an Oddfellows Lodge.

ROTHERHAM HOSPITAL.—Assistant House Surgeon. Rooms, commons, and washing provided in the hospital in lieu of salary.

ROYAL FREE HOSPITAL, Gray's-inn-road.—Junior Resident Medical Officer for six months. Board and residence provided in the hospital.

SOUTHPORT INFIRMARY AND LOCAL DISPENSARY.—House Surgeon. Salary £100 per annum, with board, furnished rooms, and attendance.

WALLASEY DISPENSARY.—Assistant or Junior House Surgeon. Salary £80 per annum, with furnished apartments, coal, gas, and attendance.

WEST RIDING ASYLUM, Wadsley, near Sheffield.—Pathologist, and also required as fourth Assistant Medical Officer. Salary £100 per annum, rising £10 a year up to £150, with board &c.

Births, Marriages, and Deaths.

BIRTHS.

GABB.—On Feb. 20th, at Copthorne, Guildford, the wife of J. Percy A. Gabb, M.D. Lond., of a son.

GIBBONS.—On Feb. 22nd, at Cadogan-place, the wife of R. A. Gibbons, M.D., of twin daughters.

KINNEIR.—On Feb. 22nd, at Gordon House, Horsham, the wife of F. W. E. Kinneir, M.R.C.S., of a daughter.

RICHARDSON.—On Feb. 12th, at Bryngwy, Rhayader, Radnorshire, the wife of Frank L. C. Richardson, L.R.C.S., L.R.C.P., of a son.

TOBIN.—On Feb. 19th, at Stephen's-green, Dublin, the wife of R. F. Tobin, Brigade Surgeon (retired list), Army Medical Staff, of a daughter.

MARRIAGES.

PHILLIPS—TWEEDIE-MIDDLETON.—On Feb. 26th, at Christ Church, Lancaster-gate, by the Rev. C. J. Ridgway, Vicar, John Phillips, M.A., M.D. Cantab., M.R.C.P., of 71, Grosvenor-street, W., eldest son of the late L. Phillips, Esq., of Birchmoor Manor, near Leighton, and Wendover, Bucks, to Rachel Rattray, elder daughter of R. Tweedie-Middleton, of Hillfoot, New Kilpatrick, N.B., and granddaughter of the late Sir James Watson, J.P., D.L., of Glasgow.

SMITH—HALL.—On Feb. 6th, at St. Helen's, North Kensington, Edward Locke Cathcart Smith, M.R.C.S., L.R.C.P., Indian Medical Service, son of Alexander Smith, of Madras, to Alice Maude Hall, stepdaughter of S. Bosley, of Blenheim-crescent, Notting-hill, W.

DEATHS.

BRANTHWAITE.—On Feb. 11th, at his residence, Colman Hill House, Halesowen, Worcestershire, Harrison Branthwaite, F.R.C.S. Edin., aged 62.

HARRIS.—On Feb. 20th, at Old Burlington-street, Dr. Walter Harris, formerly House Surgeon to the Bristol General Hospital, aged 40.

HATCHELL.—On Feb. 19th, at his residence, Upper Merrion-street, Dublin, George William Hatchell, M.D., Physician in Ordinary to his Excellency the Lord-Lieutenant, and late Inspector-General of Lunatic Asylums in Ireland, aged 81.

MELHUISH.—On Feb. 24th, at Crossfield-road, Belsize-park, John Melhuish, L.R.C.P., M.R.C.S., Lieut. Royal Jersey Light Infantry, younger son of Arthur James Melhuish, aged 27.

WALSH.—On Feb. 17th, at Ormskirk, Lancashire, James Gordon Walsh, L.R.C.P., L.R.C.S. Edin., aged 45.

WARRENER.—On Feb. 23rd, at 6, Gordon-terrace, Exmouth, of congestion of the lungs, William Warrener, J.P., M.D., L.R.C.P. Edin., &c., aged 61. He was for many years in practice at Hertford, and twice Mayor of that borough.

WHITMORE.—On Feb. 23rd, at Sloane-street, Chelsea, John Whitmore, Surgeon, aged 74.

YOUNG.—On Feb. 25th, at Albion Terrace, South Shields, Thomas Young, M.R.C.S., L.S.A., aged 68.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

HER MAJESTY'S ARMY AND INDIAN MEDICAL SERVICES.

Questions set to the Candidates at the recent Competitive Examination of Candidates for the above Services.

NATURAL SCIENCE.—DR. ALLMAN.

Zoology.—1. Give generally the geographical distribution of the Trochilidæ (humming birds).—2. By what special features are many of the insects inhabiting remote oceanic islands characterised?—3. Refer to its proper sub-kingdom and class each of the following genera of animals: Mytilus, Argonauta, Holothuria, Actinia.

Botany.—4. How do plants differ from animals as to the source whence they derive the proteids of their tissues?—5. Refer to its natural order a plant with the following characters, and give one or more examples: Flowers gamopetalous, crowded on a receptacle and surrounded by an involucre. Stamens five with the anthers united into a tube. Ovary coherent with the calyx, one-celled. Fruit with a simple erect seed.—6. Contrast the inflorescence of the fig with that of the mulberry.

Physics.—7. How would you express the apparent loss of weight suffered by a body weighed in water?—8. How are icebergs formed? 9. What is the relation of the length of a pendulum to the time of an oscillation?

CHEMISTRY.—DR. ALLMAN.

1. In the decomposition of water by an electric current, mention the pole of the battery (platinum or zinc) at which each of the liberated elements makes its appearance.—2. What is the arsenic of commerce? In what relation does it stand to the element of that name? Write down its formula.—3. What is the chief difference, as regards their constituents, between the ashes of marine and land plants?

SURGERY.—MR. POLLOCK.

1. Describe the characteristics of the different varieties of curvature of the vertebral column, their pathology and treatment.—2. Give the symptoms of a case of internal strangulation of the small intestine; the most common causes of such an attack, and the treatment.—3. Describe the changes which usually take place during the progress of scrofulous disease of the knee-joint; and the treatment, local and constitutional, in its various stages.—4. What causes give rise to blood in the urine? Describe the symptoms by which such causes may be diagnosed, and their treatment.—5. Give the symptoms of inherited syphilis; in infancy, in childhood, and in adult life, with the treatment, according to age and other circumstances.—6. Describe the surgical treatment of a case of empyema, in order to ensure, not only the removal of the fluid, but also the subsequent obliteration of the cavity in which it was contained. What are the necessary changes which must occur to effect this result?

MEDICINE.—SIR WILLIAM AITKEN.

1. Case given for commentary; description of its nature and pathology required.—2. Name the chief diseases of tropical climates, and state the isothermal limits of the tropical zone, as distinguished from the geographical.—3. Define enteric fever; describe its symptoms, its course, and its treatment during its different stages, and in relation to its morbid anatomy. With what diseases may it be confounded, and indicate the differentiating diagnosis in each?—4. Describe the essential symptoms and typical forms of influenza; mention the pathological states which, more or less, intimately ally themselves with it, and name the diseases which have been erroneously described as cases of influenza. Explain the meaning of the term "epidemic constitution," and describe how a case of influenza should be treated.—5. What are the chief officinal preparations for internal use, and their doses of mercury and lead? In what tissues and organs have these metals been found after they had been taken as a medicine or been introduced accidentally? By what channels do they leave the body, and how may their exit be accelerated?

ANATOMY AND PHYSIOLOGY.—SIR JOSEPH FAYRER.

1. Describe the astragalus, its articulations, its relation to and connexion with other parts; its structural peculiarities, and its development. Give an account also of the structure, chemical composition, and nutrition of bone.—2. Describe the origin, anatomical relations, distribution, and connexions of the glosso-pharyngeal nerve, and its branches. 3. Describe the right lung; giving its anatomical relations, connexions, and structure. Describe also the changes which take place in the air in respiration. 4. Describe the origin, course, distribution, and anatomical relations of the internal maxillary artery and its branches. 5. Describe the dissection by which you would expose Hunter's canal; giving an account of the parts and their anatomical relations which enter into its formation, or are contained within it.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, February 27th, 1890.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Feb. 21	30·16	S.E.	36	35	..	40	25	·01	Foggy
,, 22	30·44	S.E.	40	39	49	44	36	..	Overcast
,, 23	30·62	N.E.	37	34	59	43	34	..	Cloudy
,, 24	30·59	N.E.	36	35	56	46	34	..	Overcast
,, 25	30·52	N.E.	36	35	76	44	35	..	Cloudy
,, 26	30·29	E.	39	38	48	45	35	..	Overcast
,, 27	30·45	N.E.	36	34	68	41	34	..	Cloudy

Notes, Short Comments, & Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

All communications relating to the editorial business of the journal must be addressed "To the Editors."

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "To the Publisher."*

We cannot undertake to return MSS. not used.

INFANTILE MORTALITY.

DR. VICTOR C. VAUGHAN sums up the conclusions he has arrived at from a study of the statistics of the infantile death-rate in the United States (*Journ. Amer. Med. Assoc.*, Feb. 8th) as follows:—

"1. One-fourth of the children born in the United States die before they reach the end of the fifth year of life—2. Derangements of digestion cause more than 50 per cent. of these deaths. This class of diseases may be restricted by proper attention to the food.—3. Infectious diseases are serious in their effects upon infantile mortality. They may be restricted by isolating the sick and disinfecting clothing and rooms.—4. About three-eighths of the total deaths from pneumonia occur among those under five years of age. Proper clothing and lessened exposure to extremes of temperature will do much to protect against this disease."

Merlin.—Cocaine is *local* in its action. A hypodermic injection deadens sensation locally. It has been applied in solution to the cervix uteri and perineum during labour; but, as its action is superficial, it cannot be relied on as a local anæsthetic in parturition.

Catheter.—The situation of B. is a painful one. We cannot dogmatise on his duty. Consideration has its limits, and a firm intimation of the limits having been nearly reached may be useful.

Mr. G. C. T. Bartley.—We are afraid the matter is a little outside our province.

THE METEOROLOGY OF SPRING.

To the Editors of THE LANCET.

SIRS,—I have read with much interest your article under the above title in your issue of Feb. 15th, p. 357, and beg to supplement it with some observations derived from an analysis of the temperature and rainfall at the Royal Observatory for the seventy years 1815 to 1884. This analysis discloses some remarkable laws which regulate the association of extremes of temperature and of rainfall in many of the months and seasons. As an illustration, I will only allude to this one (which, I believe, is contrary to a common opinion)—that very cold winters have a marked tendency to be followed by cool summers, and very warm winters by warm summers. On comparing carefully the winters and springs during the aforesaid series, though there are evidences of a certain association between them, yet the exceptions are rather too many to permit us to assert with confidence that a law of sequence has been disclosed. The same remark applies at present to the attempt to connect the temperature or rainfall of March with that of the preceding January or February. As the series of observations (already covering seventy years) is further extended, some of these doubtful points may be cleared up. At present, however, it may be safer to confess that the weather sequence of the early spring months is of "indefinite" character.

I remain, Sirs, yours respectfully,

H. COURTENAY FOX, M.R.C.S. (late F.R.Met.Soc.).

Hastings, Feb. 22nd, 1890.

A NEW CARPET SWEEPER.

WE have had submitted to us a sample of the "Ewbank" Carpet Sweeper, for which claims are advanced that it raises no dust, and sweeps well and silently (even under beds), the dust being collected and retained in the sweeper and afterwards removed, and that therefore it is well adapted for use in the sick-room or hospital. So far as we are able to judge, it performs its work easily and admirably.

Anxious.—The question is a serious one, and not to be lightly answered. We see an essential difference between a man selling the goodwill of a practice which he has himself created and agreeing to sell his local influence to procure an appointment. We think our correspondent will see many points of difference between these two cases. Local influence is a valuable and legitimate thing; but when it comes to be bought and sold, its character is changed.

M. D.—The solicitor who has drawn the deed should decide. As far as we can judge, B and D should pay the cost.

G. J. P.—The disease was probably caught in the discharge of A's duty. In any case, we think it would be well to raise no question about the full payment.

MEDICAL ETHICS IN BOMBAY.

To the Editors of THE LANCET.

SIRS,—Herewith I beg to enclose a statement of facts of a case for favour of opinion.

On Dec. 16th, 1889, I was called to see a patient suffering from fever. After a lapse of about three or four days, I came to the conclusion that my patient was suffering from an attack of typhoid fever, and I gave out then that the disease would last for a period varying from three to four weeks. During the height of the fever, at the request of the relatives, I consulted Dr. Parekh, and subsequently Dr. Bahdurji, who also pronounced the case to be one of typhoid fever. On the twenty-fourth day of the attack the lysis began, and after a period varying from five to seven days, the relapse took place. During the height of the second attack again Dr. Bahdurji was consulted, and he, having formed the same notions like those of mine, left the place. As my patient was living in a bad locality, I tried hard with the relatives, and removed him to an airy place. At this place the relatives, becoming impatient, asked me to consult another medical man of long hospital experience, and Dr. Hughes was consulted. He was also of the same opinion, and, with slight alteration in the line of treatment, left the place. This very evening, at the request of one of the relatives, Dr. Anna was consulted, whose treatment was only continued for a day or so, as he declined attending on the patient any longer. After his removal, one medical man, Mr. Rustumji Bharucha, living at a few yards from the place, had some occasion for interference, and he accordingly prescribed some powders to lower the temperature; a line of treatment which I did not like. Hereupon I requested Mr. Bharucha to take the responsibility of the case on his own shoulders or not to interfere in my own line of treatment. He expressed his own views of the case and gave up interfering any further; but to my great surprise he kept on attending the patient from time to time, and during my absence consulted the same Dr. Bahdurji. After this I left the patient, for I did not like any sort of interference in my work. The purport of this consultation has not as yet transpired, and I am completely in the dark until now.

Judging from the rules of medical ethics, I believe the medical attendant, Mr. Bharucha, and the consultant, Dr. Bahdurji, have violated the primary rules, and whether the latter was justified in holding the consultation I leave you, Sirs, to decide.—Apologising for the trouble, I beg to remain, Sirs, yours obediently,

KEKHASRU SORABJI,
Assistant Surgeon, B.M.S.

Bombay, Feb. 6th, 1890.

*** We entirely approve of the course taken by our correspondent, and concur in his view. He is to be congratulated on showing self-respect, as well as on his patience in repressing it for the sake of his patient and his fidgety and indiscreet friends.—ED. L.

WILKES INDEMNITY FUND.

To the Editors of THE LANCET.

SIRS,—Kindly insert the following subscriptions to the above fund, which have been received since the publication of the list in your last issue. I am, Sirs, yours faithfully,

H. J. MANNING, Treasurer.

Laverstock House, Salisbury, Feb. 25th, 1890.

Dr. Pye-Smith	..	..	£2 2 0	Dr. Lush	..	..	.. £1 1 0
T. J. Tucker, Esq.	..	..	2 0 0	Dr. Macdonald	..	..	1 1 0
H. G. Dyer, Esq.	..	..	1 1 0	J. P. Symes, Esq.	..	..	1 1 0
H. W. Gosse, Esq.	..	..	1 1 0	Dr. Neale	..	..	.. 0 10 6

INCOME TAX.

To the Editors of THE LANCET.

SIRS,—With reference to your correspondent's inquiry on the subject of income tax in your last issue, I beg to say that he is liable to pay the tax under Schedule E in respect of parish appointments, and under Schedule D on his private practice. If his professional income is only £350, he should pay income tax on that amount under the two heads—Schedules D and E,—less deductions for professional expenses &c., also less £120 if his income from all sources is below £460.

I am, Sirs, yours truly,

Brentwood, Feb. 24th, 1890. J. R. WHITE, M.B.

THE LATE DR. BREHMER.

IN a letter to the *Boston Medical and Surgical Journal* (Feb. 6th), Dr. Vincent Y. Bowditch pays the following tribute to the memory of the late Dr. Brehmer of Görbersdorf:—

"The recent and sudden death of Dr. Hermann Brehmer of Görbersdorf, Silesia, deserves much more than a passing notice in our medical journals. To him chiefly we owe the fact that the death-rate of consumption can be largely decreased by the establishment of properly regulated sanatoria, especially adapted to the needs of this disease, and he may justly be termed the father of this method, now rapidly growing in this country. About thirty years ago Dr. Brehmer, as a young man, having devoted himself almost exclusively to the study of phthisis, founded the now famous institution in the little mountain village, Görbersdorf, not far from Breslau. Firmly convinced of the error of the former methods of treating consumptive patients by shutting them up in hot rooms and giving large doses of medicine, he sought out this little mountain village, about 1800 feet above the level of the sea, where consumption had never been known to arise, and there in a very modest way began to act upon his convictions that the treatment of phthisis should be as much fresh air as possible, good food, and moderate exercise upon the mountain sides. The storm of opposition which naturally arose was only that which meets every reform. Dr. Brehmer was ridiculed by the profession; but he steadily adhered to his convictions, and slowly, but surely, convinced not only his friends, but his former opponents, that he was right. Since then, in various parts of Germany, smaller institutions for similar use have been founded by followers of Dr. Brehmer's idea; and the success of these, even in climates commonly supposed to be most unfavourable for phthisical patients, is a constant proof of the correctness of Dr. Brehmer's convictions, not that every case of consumption could be cured, but that the percentage of deaths could be largely decreased, and the personal comfort of hopeless cases much increased, by following out his prescribed methods.

"It was my privilege last summer to visit Görbersdorf, and it would be difficult for me to express the enthusiasm which I felt for this man when I saw the evidence of his kindness of heart, of his untiring zeal and energy on every side. In a letter of this nature a detailed description of the sanatorium would be out of place. My chief desire is to add my tribute of respect to the memory of one who has done much, not only for his own countrymen, but for the world at large. As we read in our medical journals of the various new sanatoria being established in our own country for the treatment of consumption, let us never forget what the human race owes to Hermann Brehmer."

A. W.—1. An M.R.C.S., provided he is on the Medical Register, can legally practise dental surgery, and style himself "surgeon-dentist," as the penal clauses of the Dentists Act do not affect registered medical practitioners.—2. An M.R.C.S. cannot register as a dentist without possessing the L.D.S.

Ethics.—Our correspondent's fit and very good description will be his name followed by the words "M.B., Surgeon, &c."

THE TEMPERATURE AND PULSE IN INFLUENZA.

To the Editors of THE LANCET.

SIRS,—There is a peculiar combination of symptoms present in a large number of influenza cases, of which no account is given in the text-books that I have consulted, nor have I noticed any reference in the correspondence in the medical papers—viz., the existence in the early stages of high temperature (101° to 103°) with a slow pulse (80 or under). It has been my rule to take the temperature in all cases seen within twenty-four hours of the onset of symptoms. In no such case have I taken a temperature below 100·4°, or a pulse above 88. After the first twenty-four hours the pulse-temperature ratio varies. Both may be normal, or both raised; but in uncomplicated cases the pulse often remains at or below 80. I cannot call to mind any other disease in which a temperature of 103° degrees exists with a pulse of 80, and it would be of interest to know whether the experience of others bears out my observations. If so, we have an important aid to diagnosis, especially at the beginning of an epidemic the true nature of which has to be determined. I am, Sirs, yours faithfully,

Hull, Feb. 15th, 1890. H. FARBSTEIN.

A CORRECTION.

To the Editors of THE LANCET.

SIRS,—Allow me to correct an error in the report of my remarks on Mr. Noel Humphreys' paper on the Alleged Increasing Prevalence of Insanity, read before the Royal Statistical Society on Feb. 18th (THE LANCET, Feb. 22nd, p. 432). I did not state that "statistics in Yorkshire went contrary to the assertion that insanity was increasing by accumulation," my contention being that much of the apparent increase of existing insanity is due to accumulation. The mortality in the Wakefield Asylum has, as stated, fallen since the first decade after its opening. Hence, as the recoveries have unfortunately not risen, an increased rate of accumulation has occurred. (To "the average of recoveries had been 42 per cent." *add* while during the first decennium the percentage was 45.) Allow me to state that the annual proportion of first admissions to the general population has not advanced as regards the asylums in the county of York.—Yours truly,

Wellbeck-street, Feb. 24th, 1890. D. HACK TUKE, M.D.

MESSRS. THURBERS, GATES, & CO.'S "CEREALINE FLAKES."

By an error we spoke last week of the above as a preparation of wheat. We should have said of maize. The flakes are excellent in composition and preparation.

Dr. Hatter (Rankwitz).—We should like to have an opportunity of examining an apparatus which is said to be capable of effecting such remarkable results.

A. G.—The Secretary of the London Obstetrical Society, 20, Hanover-square, W.

PAY OF MEDICAL OFFICERS.

To the Editors of THE LANCET.

SIRS,—Your leading article on the medical officership for the London School Board brings up the whole question of inadequate remuneration for skilled medical service. After a long and expensive curriculum, surely we might expect to take our place in the ranks of skilled labourers. The public, however, appear to think otherwise; and because our wish for experience creates competition, they insist, in many cases, that our services shall be given almost gratuitously. The average salary offered by institutions to qualified men is simply insignificant when compared with that of other officers whose responsibilities are not nearly so great. In the list of vacancies we continually see "board and residence" offered as remuneration. Now, I contend that a man whose services are worth no more than this certainly ought not to be entrusted with the lives of his suffering fellow-creatures. The time, surely, has arrived when a qualified man should not accept a post of responsibility in which he cannot at least support himself without constant calls upon the paternal purse. This being granted, let hospital authorities give up the idea that a medical officer can live on the wind, while he alone of all the staff is expected to be on duty night and day. Let us all recognise the fact that the saying, "The labourer is worthy of his hire," applies to the medical profession quite as much as to any other calling. I am, Sirs, yours faithfully,

Feb. 17th, 1890. JUVENILE LABOURER.

ESSEX AND COLCHESTER HOSPITAL.

To the Editors of THE LANCET.

SIRS,—We are obliged to you for your brief notice of the above hospital in your last issue, p. 444. There are, however, one or two points in our report which we should like to have laid more prominently before you. 1. That our Hospital Saturday collection of £568 0s. 2½*d.* is the highest in amount ever yet collected by us, and will, I think, compare very favourably with similar sums collected in other towns of 30,000 inhabitants. 2. That the experiment of paying a physician a salary of £200 per annum does not seem to have damaged the finances of the institution, the income about balancing the expenditure, while the work is "most efficiently performed." In the medical board's reports you will find that as regards "hospital abuse" the evil is reduced to a minimum by the judicious inquiries instituted by the committee into the status of each patient.

Believe me, Sirs, yours faithfully,

Colchester, Feb. 25th, 1890. ALEXANDER WALLACE, Physician.

ADVERTISEMENT OF MEDICAL ADDRESSES IN WHITAKER'S ALMANACK.

To the Editors of THE LANCET.

SIRS,—I am glad to see that in an annotation in your issue of Feb. 15th you comment upon the members of a hospital staff advertising themselves. What, then, do you say, and what do your numerous professional readers say, to Whitaker's Almanack, pages 130 and 131 of the advertisements? Yours obediently,

February, 1890. F.R.C.S.

COMMUNICATIONS, LETTERS, &c., have been received from—Dr. W. T. Gairdner, Glasgow; Dr. R. Savage, London; Mr. J. Hutchinson, jun., London; Dr. Gowers, London; Dr. Jas. Taylor, London; Mr. Vincent Mercier, London; Dr. J. S. R. Russell; Dr. Burghard; Dr. Sedgwick Saunders; Mr. I. Norris, Philadelphia; Dr. Rutherfoord, London; Mr. Davey, Liverpool; Dr. Mayne, Longford; Messrs. Burroughs and Wellcome, London; Mr. Pritchard, Lancaster; Messrs. Entwistle and Kenyon, Accrington; Mr. Eastes, London; Mr. C. S. Porter, West Hartlepool; Dr. A. E. Wells, Cuckfield; Messrs. Wood and Co., New York; Dr. Auld, Glasgow; Mr. Okell, Douglas; Messrs. Strode and Co., London; Dr. Lediard, Carlisle; Dr. Williams, Ventnor; Dr. Hack Tuke, London; Mr. J. Macarthy, London; Mr. O'Connor, Argentine Republic; Mr. G. C. T. Bartley, London; Messrs. Hopkinson and Co., Notts; Mr. G. A. Ferguson, London; Messrs. W. H. Smith and Son, Manchester; Dr. F. W. Hewitt, London; Messrs. G. Street and Co., London; Dr. W. A. Wells, London; Mr. Marriott, Swaffham; Dr. W. Duncan, London; Dr. Manning, Salisbury; Messrs. Griffin and Co., London; Mr. Rutherford, Glasgow; Mr. Jack; Dr. Charlton Bastian, London; Mr. Robinson, London; Mr. Hill, London; Dr. Percy Kidd, London; Mr. Jeaffreson, Newcastle-on-Tyne; Messrs. Squire and Sons, London; Dr. Wallace, Colchester; Messrs. Longmans and Co., London; Mrs. Branthwaite, Halesowen; Messrs. Kingsford and Co., Piccadilly; Mr. Ackery, London; Mr. Silcock, London; Mr. H. C. Fox, Hastings; Dr. MacCormac, Belfast; Mr. J. Cochrane, Edinburgh; Dr. Shand, Edinburgh; Dr. Willoughby, London; Dr. McVail, Kilmarnock; Dr. S. Stephenson, London; Dr. H. Briggs, Liverpool; Mr. Abbott, Braintree; Dr. J. R. White, Brentwood; Dr. Heywood Smith, London; Mr. Haslam, Birmingham; Dr. Bull; Messrs. Dodd and Co., London; Mr. Hubbard, Hastings; Mr. Santi; Messrs. Bates and Co., London; Mr. Squire, Portland-place; Messrs. Isaacs and Co., London; Dr. A. Bertarelli, Milan; Mr. Wimpole, London; Mr. K. Sorabji, Bombay; Mr. Meadows, Hastings; Mr. Ronald, Lincoln's-inn; Mr. C. E. Cassal, London; Mr. Massingham, London; Dr. Pugh, Alabama, U.S.A.; Mr. Haviland, Douglas; Mr. Brown, Westgate-on-Sea; Mr. Farnham, Suffolk; Mr. Carter, Southport; Mr. Tempest, Manchester; Mrs. Monkhouse, London; Dr. Hutchinson, Bridlington; Mr. Linney, Hitchin; Mr. Jarchow, London; Messrs. Oliver and Boyd, Edinburgh; Mr. Harris, Manchester; Messrs. J. Beal and Son, Brighton; Mr. Armstrong, Newcastle-on-Tyne; Messrs. Evans and Co., Swansea; Mr. Deacon, Manchester; Messrs. Everett and Son, London; Mr. Blair, Alnwick; Mr. T. Cooke; Messrs. Davies and Co., Cornhill; Mr. Peters, Berlin; Mr. Roberts, Devon; Mr. Heap, Liverpool; Dr. Fraser, Carnarvon; Mr. Boyce, Bath; Mr. Toogood, London; Mr. Hicks, Hatton-garden; Dr. Dalton, Dorset; Mr. Ripley, Southport; Mr. Scott, Manchester; Mr. Fischer, Jena; Mr. Mouillin, London; Mr. Richardson, Rotherham; Mr. Long, Oxon.; Mr. Aveling, Paddington; Mr. Boorne, Twickenham; Mr. Hyslop, Church Stretton; Mr. Denman, Beaconsfield; Mr. Haysman; Excelsior Agency, New York; Anxious; M.D.; Ethics; The Director-General of the Navy Medical Department; Merlin; Anti-humbug; F. J. S.; Pulsometer Engineering Co., London; Catheter; Medicus, co. Durham; One of the Victims; C. D., Leeds; Coptic, London; Registrar, Royal College of Surgeons, Ireland; Pasteur, London; A. B. C., London; Islington Glass Bottle Co., London; Ceylon Office, London; Publisher, *Sunday Times*; A. G.; Tropics, London; The Director-General of the Army Medical Department; Matron, Royal Portsmouth Hospital.

LETTERS, *each with enclosure*, are also acknowledged from—Dr. Sutton, Hants; Mr. Deunce, Liverpool; Mr. Emminson, Bawtry; Mr. Owen, Redditch; Dr. Parkinson, Sutton-on-Trent; Messrs. Clarke, Son, and Platt, London; Mr. Netherton, Snodland; Mr. Cuthbertson, Rhondda Valley; Dr. Ker, Halesowen; Mr. Tully, Hastings; Messrs. H. and C. Ratcliffe, Liverpool; Mr. Williams, Oswestry; Messrs. Matthews Bros., London; Miss Landale, Leeds; Messrs. Hazell, Watson, and Co., London; Mr. Fleming, Tufnell-park; Messrs. Brown, Gould, and Co., London; Mr. Barkley, London; Mr. Johnson, Basingstoke; Mr. Blatchley, London; Mr. Bamford, Uttoxeter; Messrs. Hooper and Co., Covent-garden; Mr. Brown, Willenhall; Messrs. Cassell and Co., Ludgate-hill; Dr. Adamson, co. Durham; Mr. Appell, Totland Bay; Dr. Saunders, Ripley; Mr. Gower, Stratford; Messrs. Gale and Co., London; Mr. Thurnburn, Cumberland; Messrs. Carswell and Co., Piccadilly; Mr. Campbell, Lincoln's-inn; Messrs. Reid and Co., Bristol; Mr. Willan, Reading; Mr. Highton, Derby; Dr. Wilson, Penistone; Dr. Wilson, Worcester; Mr. Huland, Preston; Dr. Davies, Glamorgan; Mr. Standley, Leicester; Mr. Ticknee; Dr. Redwood, Rhymney; Mr. Lowdell, Beeston; Mr. Foale, Devon; Mr. Laird-Cox, Shropshire; Prof. Charteris, Glasgow; Prof. Trombellata, Massina; Mr. Gowett, Barnley; Mr. Howard, Hitchin; Dr. Akerman, Salisbury; Mr. Ungent, Cookstown; Mrs. Theobald; Dr. Hubbersty, Somerset; Mr. Jones, Dowlais; Mr. Fennell, Hastings; Dr. Harris, London; Dr. Blurton, Stourbridge; Mr. Craig, Lonzie; Mr. Roderick, London; Mr. Ryan, Marylebone; Mr. Piggott, Cambs; Mr. Corke, Baschurch; Mr. Codd, Dublin; Mr. Frost, London; Mr. Amidon, New York; Mr. White, Notts; Mr. Hawthorn, Salop; Messrs. Macbechlan and Co., Edinburgh; Mr. Heywood, Manchester; Mrs. Child, Great Malvern; Dr. Hutchinson, Durham; Mr. Rundle, Truro; Mr. Lack, Stockport; Dr. Warrener, Exmouth; Dr. Hanna, Lanes; Dr. Waters, Liverpool; Mr. Openshaw, London; Dr. Bryan, Yorks; Mr. Ellis, Norfolk; Mr. Crickmay, Suffolk; Mr. Hale, Chesterfield; Mr. Evered, Bridgwater; Miss Carson, Burton-on-Trent; M.D., Bideford; A. F., Assistant, Reading; W. A. K., Hackney; Medicus, Richmond; The Hermitage, Yorkshire; Rector, Cornwall; Secretary, Wonford House Hospital, Exeter; M.P., London; Assistant, Birmingham; Master of Downing, Cambs; Matron, Eastbourne; Comus; Express Dairy Co., Bloomsbury; Surgeon, Manchester; Alpha, London; Sarpedon, London; F., London; P. B. D., London; Medicus, London; M.O.H., Leicester; Medicus, Nottingham; G. H., Mayfair; Secretary, Lock Hospital, Harrow-road; P. F., London; Secretary, Barnwood House Hospital, Gloucester; S. F., London; Secretary, St. John Ambulance Association; N. B., London; W., London; Massage, London; P. P., Denmark-hill; Doctor, Brixton; Pasteur, London; B., London; Cato, London; Nemo, London; W. B. C., Bethnal-green; J. E., Accrington; R. T. F., London; Lund, Bradford.

NEWSPAPERS.—*East Anglian Times, Belfast Morning News, Liverpool Echo, Leeds Mercury, Star of the East, North British Daily Mail, West Middlesex Advertiser, Kilkenny Journal, Bristol Mercury, Broad Arrow, Sunday Times, Sheffield Daily Telegraph, Builder, Chemist and Druggist, Metropolitan, Answers, Family Doctor, Mining Journal, Bell's Weekly Messenger, Hertfordshire Mercury, Saturday Review, Weekly Free Press and Aberdeen Herald, City Press, Bolton Evening News, Sussex Daily News, Surrey Advertiser, New York Herald (London), Windsor and Eton Express, Public Opinion, Weekly Budget, Reading Mercury, The News (London), Temperance Record, Pall Mall Budget, Vegetarian, Liverpool Daily Post, Freeman, Vanity Fair, Northern Whig, Sunday School Chronicle, Alliance News, The London Overland Mail, Scotsman, Evening Chronicle (Newcastle-upon-Tyne), North Star, Scarborough Post, Nursing Record, Trade, Finance, and Recreation, Gardener's Magazine, Welfare*, &c., have been received.

Medical Diary for the ensuing Week.

Monday, March 3.

CHARING-CROSS HOSPITAL.—Operations, 3 P.M.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, daily at 10 A.M.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M., and each day at the same hour.

CHELSEA HOSPITAL FOR WOMEN.—Operations, 2.30 P.M.; Thursday, 2.30.

ST. MARK'S HOSPITAL.—Operations, 2.30 P.M.; Tuesday, 2.30 P.M.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M., and on Thursday at the same hour.

METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.

CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and each day in the week at the same hour.

UNIVERSITY COLLEGE HOSPITAL.—Ear and Throat Department, 9 A.M.; Thursday, 9 A.M.

LONDON POST-GRADUATE COURSE (Royal London Ophthalmic Hospital, Moorfields).—1 P.M. Mr. Marcus Gunn: External Diseases of the Eye.

THE SANITARY INSTITUTE (Parkes Museum, Margaret-st., W.).—3 P.M. Dr. A. T. Schofield: The Ethics of Life. (For Ladies.)

LONDON POST-GRADUATE COURSE (Hospital for Sick Children, Great Ormond-street, Bloomsbury).—4 P.M. Dr. Hadden: Birth Palsies.

ROYAL INSTITUTION.—5 P.M. General Monthly Meeting.

THE THROAT HOSPITAL (Golden-square, W.).—5.30 P.M. Dr. R. Norris Wolfenden: Tuberculosis of the Throat.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (40, Leicester-sq., W.C.).—8 P.M. Messrs. J. Bland Sutton and T. Charters White: Observations on the Structure and Development of Ovarian Teeth. Casual communications by Messrs. Storer Bennett, W. F. Henry, F. J. Vanderpant, and J. Ackery.

SOCIETY OF ARTS.—8 P.M. Mr. T. Bolas: Stereotyping. (Cantor Lecture.)

MEDICAL SOCIETY OF LONDON.—8.30 P.M. Mr. Herbert Allingham: On the Question of Operating on Fistula in Phthisis.—Dr. Percy Kidd: On Subacute Indurative Pneumonia.

Tuesday, March 4.

KING'S COLLEGE HOSPITAL.—Operations, 2 P.M.; Fridays and Saturdays at the same hour.

GUY'S HOSPITAL.—Operations, 1.30 P.M., and on Friday at same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.

ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 4 P.M.; Friday, 2 P.M.

CANCER HOSPITAL, BROMPTON.—Operations, 2 P.M.; Saturday, 2 P.M.

WESTMINSTER HOSPITAL.—Operations, 2 P.M.

WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 2.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M. Throat Department, Tuesdays and Fridays, 1.30 P.M. Electro-therapeutics, same days, 2 P.M.

ROYAL INSTITUTION.—3 P.M. Prof. G. J. Romanes: The Post-Darwinian Period.

LONDON POST-GRADUATE COURSE (Hospital for Diseases of the Skin, Blackfriars).—4 P.M. Mr. Jonathan Hutchinson: Certain Rare Diseases of the Skin.

ROYAL COLLEGE OF PHYSICIANS.—5 P.M. Dr. Arthur Ransome: Etiology and Prevention of Phthisis. (Milroy Lecture.)

PATHOLOGICAL SOCIETY OF LONDON.—8.30 P.M. Mr. Spencer: (1) Mammary Carcinoma in a Cat: (2) Prolapse of Wall of Stomach of Horse into Duodenum.—Dr. Dalton: Chronic Lateral Invagination of the Colon following a Small Cancerous Tumour.—Mr. Bowlby: Diffuse Papilloma of Bladder.—Mr. Robinson: Loose Body from Knee-joint.—Mr. Griffiths: Necrosis and Separation of Articular Cartilage, with a Series of Microscopic Sections illustrating the Nature of Loose Bodies.—Dr. West: Bronchial Casts from Bronchitis Crouposa.—Dr. Collins: Cancer of Œsophagus Eroding Trachea. Card Specimens:—Mr. Robinson: Cavernous Angioma of Leg.—Mr. Lunn: (1) Myxœdema of Larynx; (2) Tumour of Larynx; (3) Ulceration and Perichondritis of Thyroid Cartilage.—Mr. Bidwell: Double Ureter.—Mr. Shattock: Triple Ureter.—Dr. Sibley: (1) Retroflexion of Uterus in a Monkey; (2) Specimens of Tapeworm from a Python.

Wednesday, March 5.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.

MIDDLESEX HOSPITAL.—Operations, 1 P.M. Operations by the Obstetric Physicians on Thursdays at 2 P.M.

ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour. Ophthalmic Operations, Tuesday and Thursday, 1.30 P.M. Surgical Consultations, Thursday, 1.30 P.M.

ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.

LONDON HOSPITAL.—Operations, 2 P.M. Thursday & Saturday, same hour.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2.30 P.M.

GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; Skin Department, 1.45 P.M.; Saturday, 9.15 A.M.

ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.

CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9.30 A.M.; Surgical Visits on Wednesday and Saturday at 9.15 A.M.

LONDON POST-GRADUATE COURSE (Hospital for Consumption and Diseases of the Chest, Brompton).—4 P.M. Dr. Percy Kidd: Demonstration of the Methods employed in the Examination of the Sputum.

THE THROAT HOSPITAL (Golden-square, W.).—5.30 P.M. Dr. Greville MacDonald: Ozæna.

LONDON POST-GRADUATE COURSE (Royal London Ophthalmic Hospital, Moorfields).—8 P.M. Mr. Quarry Silcock: Ophthalmoscopic Cases.

OBSTETRICAL SOCIETY OF LONDON (the Society's Library, 54, Berners-street, W.).—8 P.M. Specimens will be shown. Dr. Herman: The Changes in Size of the Chest and Abdomen during the Lying-in Period, and the Effects of the Binder upon them.—Mr. Alban Doran: Apoplexy of the Ovary, Cyst Dilatation without Rupture.—Dr. E. Sinclair Stevenson: Case of Spurious Pregnancy simulating Ectopic Gestation. Special business respecting the Laws, &c.

SOCIETY OF ARTS.—8 P.M. Mr. Julian Tripplin: Recent Progress in British Watch and Clock Making.

Thursday, March 6.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Surgical Consultations, Wednesday, 1.30 P.M. Ophthalmic Operations, Friday, 1.30 P.M.

CHARING-CROSS HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; Ear and Throat Department, 9 A.M.

ROYAL INSTITUTION.—3 P.M. Mr. F. Niecks: The Early Developments of the Forms of Instrumental Music. (With Musical Illustrations.)

LONDON POST-GRADUATE COURSE (Hospital for Sick Children, Great Ormond-street, Bloomsbury).—4 P.M. Dr. Hadden: Infantile Hemiplegia.

ROYAL COLLEGE OF PHYSICIANS.—5 P.M. Dr. Arthur Ransome: Etiology and Prevention of Phthisis. (Milroy Lecture.)

HARVEIAN SOCIETY OF LONDON.—8.30 P.M. Clinical Evening. Cases will be shown by Dr. Cautley, Mr. Johnson, Mr. D'Arcy Power, and others.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (University College, Gower-street).—8.30 P.M. Prof. Schäfer and Prof. Horsley: The Centres controlling Ocular Movements.

Friday, March 7.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

LONDON POST-GRADUATE COURSE (Hospital for Consumption and Diseases of the Chest, Brompton).—4 P.M. Dr. Percy Kidd: Demonstration of the Methods employed in the Examination of the Sputum.

THE CANCER HOSPITAL (FREE), FULHAM-ROAD, BROMPTON, S.W.—4 P.M. Dr. Snow: The Palliative Treatment of Incurable Cancer.

ROYAL INSTITUTION.—9 P.M. Mr. F. Gotch: Electrical Relations of the Brain and Spinal Cord.

Saturday, March 8.

MIDDLESEX HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; and Skin Department, 9.15 A.M.

LONDON POST-GRADUATE COURSE (Hospital for Diseases of the Skin, Blackfriars).—2 P.M. Dr. Payne: Ointments and other Local Applications to the Skin.

ROYAL INSTITUTION.—3 P.M. Lord Rayleigh: Electricity and Magnetism.

SOCIETY OF ARTS.—3 P.M. Prof. Vivian Lewes: The Atmosphere.

THE SANITARY INSTITUTE (Parkes Museum, Margaret-st., W.).—3 P.M. Dr. A. T. Schofield: Nerves in Order and Disorder. (For Ladies.)

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